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ABSTRACT

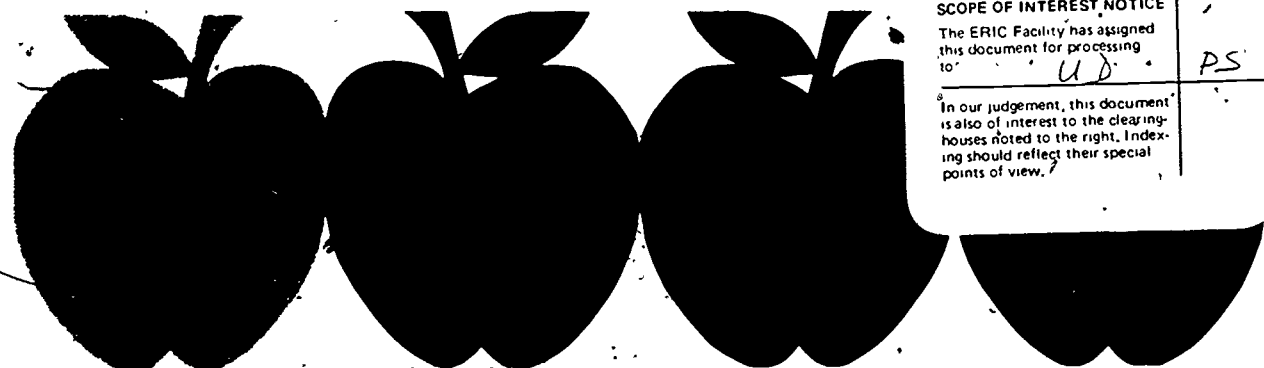
This is a study guide for school food service workers. It is designed to accompany a film series as part of a structured course in nutrition. The content of the course is based on the nutrition education concepts formulated by the Federal Interagency Committee on Nutrition Education. These include (1) the way the body uses food; (2) the nutrient composition of various foods; (3) individual variations in nutrient requirements; and (4) the relationship between the way food is handled and its nutritional value. These concepts are explained in detail in 10 lesson segments. Each lesson includes a presentation of nutritional information and suggestions as to how the information can be incorporated into school meal planning, preparation and delivery. Open book quizzes for each lesson are also provided. (GC)

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# FOOD FOR YOUTH

## STUDY GUIDE



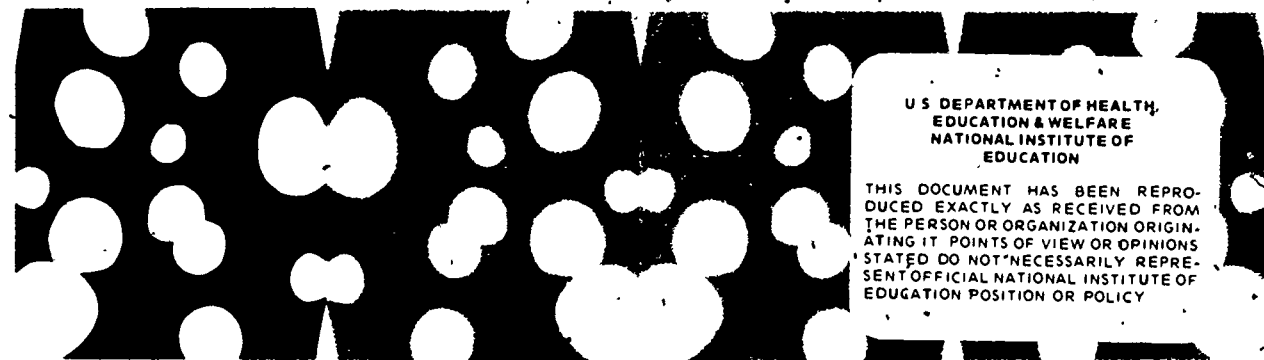
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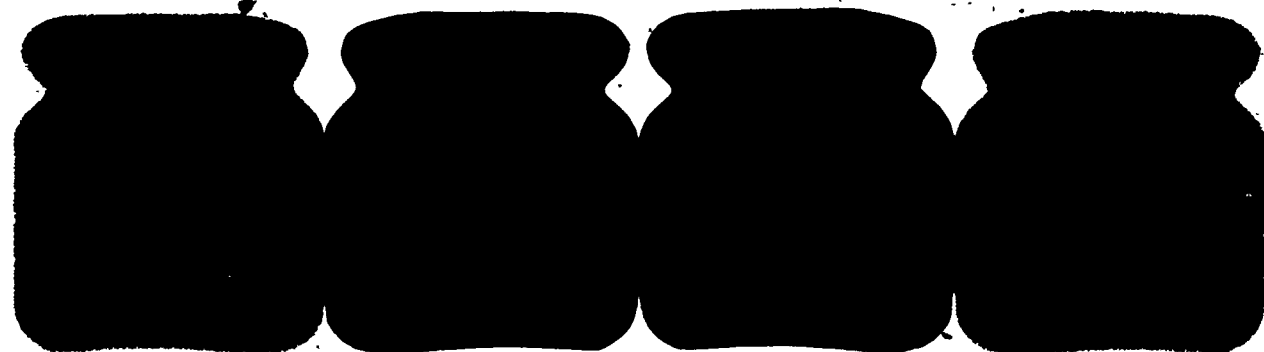
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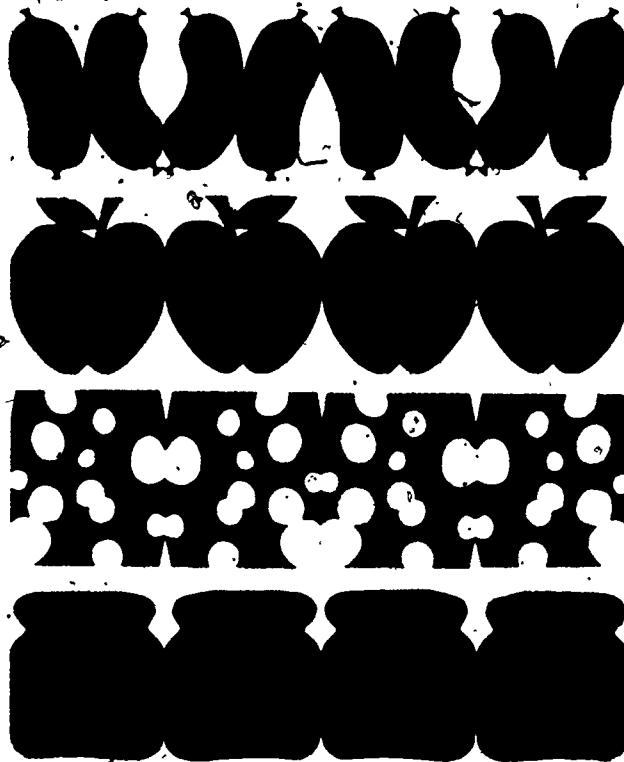
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The cooperation and assistance received from the many individuals and groups involved in the development of this course series is gratefully acknowledged.

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# FOOD FOR YOUTH STUDY GUIDE

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## INTRODUCTION

As a school food service worker, you play a very important part in the health and well-being of each one of the children in your school lunch program. You may be providing some of your children with the only nutritionally sound meal they get all day. Five times a week you're taking the place of such children's parents. Perhaps equally important, you help your children to form nutritionally sound eating habits. These habits will help them choose and eat nutritionally sound meals for their whole lives. This series, "Food for Youth," is planned to help you in both of your important roles.

Fortunately, there's little guesswork in deciding what foods and combinations of foods are nutritionally sound. What there is in foods that's health-giving, and what the human body needs from its food to grow and develop, have been studied by scientists. And what those scientists have learned is what this series of programs is all about.



## OVERALL COURSE OBJECTIVES

The primary objective of this study guide is to supplement the nutrition series, "Food for Youth," by providing a structured course in nutrition for school food service personnel like yourselves. More specifically, this nutrition course was developed:

1. To motivate school food service personnel to use their existing knowledge, skills, and tools to upgrade the diets of students in child nutrition programs,
2. To increase the knowledge and improve the understanding of nutrition among school food service personnel, and
3. To illustrate the significance of nutrition to the growth, development, health, and productivity of the individual.

The content of the course is based on the nutrition education concepts formulated by the former Interagency Committee on Nutrition Education (ICNE) of the Federal Government. You will be introduced to these concepts throughout the series. They read as follows:

1. Nutrition is the way the body uses food. We eat food to live, to grow, to keep healthy and well, and to get energy for work and play.

2. Food is made up of different nutrients needed for growth and health. Nutrients include proteins, fats, carbohydrates, minerals, and vitamins. All nutrients needed by the body are available through food. Many kinds and combinations of food can lead to a well-balanced diet.

No single food has all the nutrients needed for good growth and health. Each nutrient has specific uses in the body. Most nutrients do their best work in the body when teamed with other nutrients.

3. All persons, throughout life, have need for the same nutrients, but in varying amounts. The amounts of nutrients needed are influenced by age, sex, body size, activity, state of health, and heredity.

4. The way food is handled influences the amount of nutrients in food, its safety, quality, appearance, taste, acceptability, and cost. Handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.

## HOW TO USE THIS STUDY GUIDE

Each program in this study guide parallels one of the 10 filmed programs in "Food for Youth," generally providing more details and insight into the subject matter. For this reason, the study guide and television programs are numbered and named the same.

Before you watch each program, it will be helpful for you to look at the materials for that program contained in this study guide: (1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words. After you have viewed the program, re-read the section of the study guide for that program.

When you feel sure you've mastered all the material in each program of the study guide, turn to the quiz in the Appendix that carries the same name and number as the program you're on, and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

## LOOK AHEAD to program 1 "What's Nutrition?"

After completing the quiz, read the last section of the study guide which looks ahead to the program for the next week.

Feel free to underline in your study guide or make any notes you like. The guide is yours to keep. Long after this series is over, you'll want to refer to it to answer any questions that arise, or to help you refresh your general knowledge about nutrition.

- ☐ How would you complete the sentence which begins "Nutrition is . . . "?
- ☐ What does food mean to you? What does food mean to members of your family?
- ☐ Do you recall anything about the history of nutrition?
- ☐ What are some reasons people select the foods they do?
- ☐ Can food habits be changed?
- ☐ Are you getting to know the food habits of students in your school cafeteria?

Before you watch Program 1, look at the study guide materials for that program: (1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words.

# 1

## WHAT'S NUTRITION?

**What do you think nutrition is? Is it eating one miraculous food to take care of all your needs? Is it taking vitamin pills? Is it three meals a day? Is it eliminating snacks? Think about your concept of nutrition and how nutrition affects your daily life, especially your work in the school lunch program.**

You might think that something as basic as the relationship between the food we eat and our physical and mental well-being would have been studied for centuries and centuries. Oddly enough, that isn't so. The science of how food affects health and growth is a comparatively young science.

### **Nutrition Is a Young Science**

It's really only since the early 1900's that most of what we know about nutrition has been discovered. Other sciences are much older. The ancient Egyptians studied geography 5,000 years before Christ. The science of biology has been around since before 1600. In contrast, the science of nutrition is only about 170 years old.

Food means survival, and early man survived on the food at hand—berries, nuts, fish, or animals he could hunt. Gradually he learned how to grow food and raise herds or flocks of animals to eat. His success depended largely upon the season, the elements of nature, and his farming skills.

Early men of science raised questions about food and the body, and conducted experiments to try to find the answers. And the answers finally did start coming once chemistry was well developed and food could be analyzed to find what it was made of; once physiology became a science that could provide understanding of the

human body and how it functions; and once physics, medicine, agriculture, and biology were developed. Like most sciences today, the science of nutrition is constantly being studied, and each new finding affects its application to the everyday diet.

We know that there are many different nutrients needed by all living things, including human beings. Not only do different foods contain different important health-building nutrients, they contain them in different amounts. That's why we can't live on one food alone. We need many different foods—a dietary mix—if we are to take into our bodies all the different important nutrients we need to insure good health.

How these important discoveries were made is reviewed by "What's Nutrition?", the first television program in the series. The discovery wasn't made all at once. Like most scientific breakthroughs, it took a lot of different investigators working in many different countries on a lot of different small problems over a long period of time to reach the many small understandings that led up to this one big understanding: An adequate diet is one composed of many different nutrients provided in amounts and combinations that afford the best health, efficiency, and growth.



Once that truth was discovered, you might think that everyone would change his way of eating to insure good health. You'd think diseases associated with nutritional deficiencies, like scurvy and rickets, would disappear, that people would no longer die of malnutrition, and that everyone would feel well and full of energy and pep all the time. But, odd as it may seem, this just didn't happen. In fact, it hasn't happened even to this day.

We know that many people make poor use of money available for food by making poor food choices. As a result, many people have inadequate diets. The U.S. Department of Agriculture makes periodic surveys of household food use. In the most recent survey USDA found that there are fewer good diets and more poor diets today than in 1955 for both the rich and the poor. This information makes it fairly clear that it's not just the poor who eat poorly. We know the truth about good eating, so why doesn't everyone rush to adopt proper eating habits?

### Food Satisfies Many Needs.

People use food to satisfy needs besides hunger and the physiological needs of the body.

What are some of the needs that can be satisfied by food? Why are people in the habit of eating only certain combinations of foods, whether or not those combinations are best for them? Here are some of the common assumptions about why we eat as we do:

1. We eat for emotional security. Certain foods remind us of a time when we were happy. When we're unhappy, we tend to eat those same foods, to make ourselves feel better. That's one reason many people eat ice cream when they're upset; it reminds them of when they were little children and life was simpler.
2. We eat to belong to a group. Different nationality groups have different foods that are particularly their own. Italian families often eat lots of pasta—spaghetti, macaroni, lasagna, and the like. Many Jewish cooks use chicken fat as a shortening in many dishes. Oriental families eat rice frequently. People tend to eat the foods eaten by others in their ethnic group, although there is a tendency today to try the foods of other nationalities as well. Similarly, we are influenced in what we eat by the people we know and see every day. Joining friends for

a coffee-and-Danish break or for an after-school soda is part of being one of the gang.

People we know can influence what we don't eat, too. Have you ever noticed that when a child in the food service line announces loudly, "Yecch! I can't stand broccoli," several other kids are likely to decide then and there that they can't stand broccoli either?

3. We eat to be in style. There are fashions in foods, just as there are in clothes. The tempting color pictures in the homemakers' magazines show us what editors think are the most attractive and delicious meals that can be made. From advertisements in the newspapers and magazines, and from commercials on radio and television, we get introduced to the "newest," the "latest," the "most up-to-date" in food products, and we buy them and eat them to keep in style. We have seen plain and fancy fondue, creamy dips, quiches, hot canapes, Oriental fare, and pizzas of every description.
4. We eat to have pleasant taste sensations. Some foods just seem to taste better to us than others. If we feel like having something that tastes good, that's what we choose, whether or not it's in our body's best interest.

5. We eat to be sociable. People like people, and like being with people. Often, being together means eating together. At parties and other social gatherings, we often eat not because we are hungry, but because it goes along with the pleasure of being with and talking to other people.
6. We eat to save time and money. When we're in a rush, we choose convenience foods, foods that can be fixed quickly, or that can be eaten on the run. When we're on a strict budget, we choose foods that may fill us up at little cost.
7. We eat to achieve status. In years past, white bread enjoyed more prestige than brown bread because it originally was more expensive and only prosperous people could afford it. For the same reason, steak or roast beef are often served as our way of saying, "I can afford the most expensive!"

These are just some of the reasons that we have for eating as we do. There's nothing wrong with using food to help satisfy some of these needs, so long as the foods we choose are in line with what we know about good nutrition. Too often, however, eating for the reasons mentioned above doesn't insure us of getting full nutritional value from our foods, and that's where the trouble lies. These

are eating habits, and because they're hard to break, many people don't try to break them, even in favor of eating more wisely.

In fact, this is why there's so much emphasis on the importance of experiences with food in the early years as a way of shaping proper food habits. The school food service program in which the school food service worker is involved is a big part of these early day-by-day learning experiences with foods.

Children do not automatically like all foods. They can learn to like most foods. And your school food service program can be important to that learning process. For example, vitamin-rich broccoli may be a good vegetable to serve and it may be an old standby to you. But, some of your young customers may never have tasted it, and may react to it by saying "Phew, it smells funny" and "I don't wanna try it." You can help those children learn that unfamiliar foods are not the same as unappetizing foods and, in the process, help them to develop good eating habits that will last a lifetime. You can make food appeal to the eye and the appetite by following good preparation techniques. Preserve natural food flavors. Contrast or blend flavors carefully. Perk up foods with spices and herbs.

## The Facts About Nutrition Are Important

Often people don't choose foods with as much care and thought as they should because they don't know any better or they just don't care. Many persons lack knowledge about food and its relationship to health and well-being. Understanding and applying good nutrition has nothing to do with how educated or how rich you are. The information is easy to get, but it's widely ignored.

This is why it's so important to you, the food service worker, to learn the facts about nutrition. Not only will you and your family benefit, but so will the children who take part in the school lunch program. When you've learned about nutrition, you'll be able to guide them in the value of choosing and eating a balanced assortment of foods. You will set a good example.

Contributing to the lack of knowledge about food is what might be called "false knowledge"—unproven or untrue information about such things as vitamin pills and how they work, and the supposed value of "organic" or "natural" foods. Sometimes this kind of wrong information gets circulated as the result of advertisements in newspapers and on radio and television for products of unproven or questionable nutritional value. Sometimes it gets circulated through magazine articles written by people

untrained in the science of nutrition. Sometimes it's merely the result of wishful thinking or of superstition of food faddists and "quacks" (pretenders to knowledge). Wherever it comes from, this information is probably more destructive than no information at all!

When we don't know about the nature of foods, it's difficult to choose foods wisely. When we're in the habit of eating poorly, it's hard to change. Yet until we do begin eating according to the rules of good nutrition, men and women and boys and girls and even babies won't be as well, as strong, as healthy, or as alert as they could be.

As you can see, it's a matter of great importance that we all learn more about nutrition. After all, as more than one writer on the subject has observed, "We are what we eat." In the movement for greater understanding of nutrition, school food service workers can be among the leaders.

### **Now that you've completed Program 1 . . .**

Has your definition of nutrition changed? You should understand that good nutrition has to be a way of life, and that the habits associated with good nutrition need to begin early in life. What can you do as a school food service employee to help your students on the way to healthful eating habits? Does your lunch serve to acquaint the students with a variety of foods? Try to think up new ways to introduce new foods to your students. What did you learn that will make you a better school lunch manager?

### **Basic Points To Remember**

1. As a school food service worker, you play a very important part in the health and well-being of each one of the children in your school lunch program.
2. The science of how food affects health and growth is a comparatively young science.
3. The science of nutrition is constantly being studied, and each new finding affects its application to the everyday diet.
4. An adequate diet is one composed of many different nutrients provided in amounts and combinations that afford the best health and growth.
5. People use food to satisfy a whole host of needs besides hunger and the physiological needs of the body for the various nutrients which are in food. These are some of the psychological values of foods:
  - We eat for emotional security.
  - We eat to belong to a group.
  - We eat to be in style.
  - We eat to have pleasant taste sensations.
  - We eat to be sociable.
  - We eat to save time and money.
  - We eat to achieve status.



6.

Many persons lack knowledge about food and its relationship to health and well-being.

## Some Useful Words

### Nutrition

The science of how the body uses food. Food is eaten to live, to grow, to keep healthy and well, to get energy for work and play.

### Deficiency

A major limitation of something. A dietary deficiency refers to a diet that is severely limited in some important elements.

### Malnutrition

Problems in nutrition caused either by over-nutrition or undernutrition.

### Food Fad

A food habit pattern based on unsupported scientific evidence in the belief that a certain food or a certain combination of foods has unusual health-promoting properties.

### Nutritional Status

The state of nutrition of an individual. It concerns the relationship of food consumption to total health. It is the result not only of food intake since birth but of the mother's food intake during pregnancy.

### Natural Foods

Foods just as they come from field or tree, with nothing added or taken away during or after growing.

### Hunger

The urge to eat that pushes a person to seek food. A physical sensation.

### Organic Foods

Foods grown without commercial fertilizers, herbicides, pesticides, and without preservatives or additives.

### Diet

The entire range of foods eaten by a particular person or group. To most of us, diet refers to a range of foods that has been purposely limited in order for someone to reduce their weight, but that isn't really accurate. Every person who eats is on a diet; but some people are on weight-reducing diets.

## LOOK AHEAD to program 2 "Fuel for Life"

- ☐ Where does all the world's energy originate?
- ☐ Does your body require energy to do work?
- ☐ How does the body get this energy?
- ☐ What happens to food once you swallow it?
- ☐ How would you describe calories in food?
- ☐ How do the nutrients in food get to your body cells?
- ☐ In your cafeteria have you observed variation in growth-rate among boys and girls of the same age?
- ☐ Are height-weight figures obtained on students in your school on a regular basis?
- ☐ How important is good nutrition early in one's life?

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter; (2) the basic points to remember, and (3) the list of useful words.



# 2

## FUEL FOR LIFE

**Just as cars need gasoline to run and lights need electricity to work, human beings need food to stay alive, and they need the right kinds of food to stay healthy. Different nutrients in foods do different things to help keep the body functioning. Are you providing your students with a variety of good food so they can get the necessary nutrients? Do you know which nutrients are contained in the various food groups of the Type A pattern?**

What is a calorie? Think about it for a moment. You've heard the term, but just exactly what does it mean? Is it a substance found in food? Is it something that produces weight? Is it a combination of elements such as sugar and starch and fat? The answer is that it's none of these things though it's related to all of them. Quite simply: A calorie is a unit measure of heat; it is the amount of heat necessary to raise the temperature of water 1 degree centigrade.

The energy content of foods signifies the potential energy which may be released as heat upon combustion. It is called calories. For convenience, we talk about that energy in measurement units called calories. The energy consumed by the body comes from certain nutrients in the food we eat.

Nutritionists use the caloric measurement in two ways: they refer to the caloric value of a given food item ("A large raw carrot has 40 calories."), and they refer to the number of calories required to perform a given function ("It takes 40 calories to swim 4 minutes."). Forty calories is the "caloric cost" of swimming 4 minutes. Using this example, a large raw carrot can be converted into 40 units of energy, and those 40 units of energy can then be used for swimming 4 minutes.

### The Need for Calories

The human body is a non-stop consumer of energy. Standing, sitting, or lying down, awake or asleep, moving or still, the body uses energy. It takes energy for the heart to beat, for the blood to circulate, for the lungs to breathe, and for hair to grow. It even takes energy to think.

A variety of factors combine to determine the number of calories any individual requires. Such factors include a person's age, sex, general health condition, and body size, plus a person's occupational activities, recreational activities, and general activity.

A woman who does all her own housework and who walks to and from the grocery store, for example, will expend more energy than a woman of the same age and general physique and health who has a housekeeper to do all the heavy work at home and who does her marketing by automobile. A boy who spends all his spare time curled up with a book will expend less energy than his twin brother who spends all his spare time playing basketball. And anyone who is confined to bed is likely to expend less energy than they would when they're up and about their daily affairs. Thus, the amount of energy required, and the caloric intake needed to provide that energy, will vary not only from person to person, but from time to time for the same person.



The approximate number of calories per hour it takes to perform each of five different types of activity is given in the tabulation below. A range of caloric values is given for each type to allow for differences in activities and in persons.

The body's use of energy might be compared in some respects with a car's use of gasoline. The harder a car engine has to work, the more gas it uses. And when the car is out of gas, the car stops. So it is with the human body. The harder the body works, the more calories it uses, or "works off." If you drastically decrease your caloric intake, you will gradually run down.

Unlike a car, the body has no gas tank that overflows when it gets too much fuel. The body will just keep taking in as many calories as you give it. All that extra fuel is stored as fat which can lead to overweight and obesity. The only way to prevent that from happening is to keep energy intake and output in balance.

There is another very important point to remember about the body's use of energy. The body first uses energy to maintain body functions, activity, and body temperature before it uses energy for growth. During periods of growth, therefore, it is especially important that children be provided with enough calories. If a child doesn't have

enough food energy left from his activities, his growth and development may suffer.

In your school lunch program, you probably have children of all ages. Those children in the early school years are growing at a fairly slow, steady pace. But adolescent students are entering a period of rapid growth. Both groups need an adequate supply of calories, but the adolescents have a greater need.

For this reason it's important that the Type A lunch you serve contribute sufficient calories to each age group. The food quantities specified in the Type A pattern are for children 10-12 years old. Students who are older will need larger portions in order to give them ample supplies of all nutrients, including calories, for proper growth. (Program 5 will give you further information on adjusting the lunch portions.)

### **The Source of Calories**

We obtain calories from the protein, fat, and carbohydrate nutrients in food. Of the three, fat is the most concentrated source. It furnishes more than twice as much energy for a given weight as protein or carbohydrate.

Food energy is formed in plant life by a combination of light from the sun, water from the soil, and carbon dioxide from the air. When we eat plant foods and plant products—fruits, vegetables, cereal grains—we take these foods and the nutrients they contain into our bodies. When we eat animal products—meat, fish, poultry, milk, eggs—we are consuming not only the animal product but also nutrients that the animals originally took in from plants.

## CALORIES FOR ACTIVITY

| TYPES OF ACTIVITY | ACTIVITY  | CALORIES PER HOUR |
|-------------------|---|-------------------|
| <b>SEDENTARY</b>  | Reading; writing; eating; watching television or movies; listening to the radio; sewing; playing cards; and typing, office work, and other activities done while sitting that require little or no arm movement.  | 80 to 100         |
| <b>LIGHT</b>      | Preparing and cooking food; doing dishes; dusting; hand-washing small articles of clothing; ironing; walking slowly; personal care; office work and other activities done while standing that require some arm movement; and strenuous sitting activities such as rapid typing.                                   | 110 to 160        |
| <b>MODERATE</b>   | Making beds, mopping and scrubbing; sweeping; light polishing and waxing; laundering by machine; light gardening and carpentry work; walking moderately fast; other activities done while standing that require moderate arm movement; and activities done while sitting that require more vigorous arm movement. | 170 to 240        |
| <b>VIGOROUS</b>   | Heavy scrubbing and waxing; handwashing large articles of clothing; hanging out clothes; stripping beds; walking fast; bowling; golfing; and gardening.   | 250 to 350        |
| <b>STRENUOUS</b>  | Swimming; playing tennis; running; bicycling; dancing; skiing; and playing football.  | 350 or more       |

### **Calories From Food**

Protein, fat, and carbohydrates in food release their calories or energy into the body through digestion and metabolism. These processes begin once the food enters our mouths. The food is reduced to simpler forms which can be transferred by the blood stream to every cell in every tissue of the body. In the cells, some nutrients are oxidized (a chemical term equivalent to burning), making energy available to the body to supply its needs.

You might get the idea that calories are the only things the body has to have. But calories are only one of the body needs. A whole host of other substances—nutrients—keep the body growing and developing normally. These nutrients, together with calories, help to ensure that children grow and mature physically and mentally into functioning adults.

### **Now that you have completed Program 2 . . .**

How do you feel about calories? We'd be in pretty sad shape without them, but some of us are in sadder shape with them. You should understand that all foods contribute calories to the diet, even though only three nutrients—protein, fat, carbohydrate—supply us with calories.

Do any of your students in the lunch program suffer from calorie over- or under-nutrition? What can you do to help them improve their own well-being?

## Basic Points to Remember

1. A calorie is a unit measure of heat.
2. The human body is a nonstop consumer of energy.
3. The greater the activity, the more food calories used, or "worked off."
4. A variety of factors combine to determine the number of calories any individual requires: age, sex, general health condition, individual body size, occupational activities, recreational activities, and general activity.
5. Energy is needed by the body not only for maintaining body processes and to support activity but for growth as well.
6. Energy is used for conducting activities, maintaining a normal body temperature, and supporting body functions before it is used for growth.
7. A supply of too few calories is referred to as calorie under-nutrition.
8. A supply of too many calories is referred to as calorie over-nutrition.
9. The nutrients—protein, fat, and carbohydrate—supply us with energy (or calories).
10. Protein, fat, and carbohydrates release their calories or energy into the body through the processes of digestion and metabolism.

## Some Useful Words

### Calorie

A unit measure of heat. Remember, a calorie is not a substance, it's only a measure of heat energy.

### Digestion

The breaking down of foods into simpler parts in preparation for their absorption from the digestive tract into the blood stream.

### Metabolism

All chemical changes which occur in the body as food is made into body tissues, energy is produced, and body tissue is broken down.

### Oxidized

The chemical process which occurs in body cells whereby certain nutrients release the energy they contain for the body's use.

### Cells

The structural units of the body of which all tissues, organs, muscles, skin, and bones are built. To remain healthy, cells must be provided with some 50 or so nutrients on a regular basis, though in differing amounts.

## LOOK AHEAD to Program 3 "What's in it for Me?"

### Nutrients

Substances found in food which are needed for growth and health. All nutrients needed by the body are available through food.

- ☐ What are nutrients? Where do they come from? Why do we need to know about them?
- ☐ What foods supply what nutrients?
- ☐ Why do cells need nutrients?
- ☐ What does protein do for the body? What foods give you protein?
- ☐ Can you name some high carbohydrate foods?
- ☐ What's the difference between saturated fat and unsaturated fat?
- ☐ What foods are likely to increase the cholesterol content of your school lunch menus?
- ☐ Name some minerals needed by the body. What foods supply each of the minerals you named? What does each mineral do in the body?
- ☐ What foods on your school menu provide what vitamins? What are some functions of each vitamin in the body?
- ☐ How can you be sure your students are getting all the nutrients they need?

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words.

# 3

## WHAT'S IN IT FOR ME?

**Think about why you eat. If all you had to do was satisfy a hunger pang, you could eat a big candy bar three times a day and be done with it. But you need to think of more than just your growling stomach. You have to feed those millions of cells in your body. If they just get candy bars, they'll die. With this in mind, just why do you eat?**

The human body is composed of millions of cells, all of which must be fed with nutrients. The cell is the basic building block with which all tissues, organs, muscles, skin, and bones are built. When we talk about feeding the body, what we really mean is feeding the cells. When we ask what kinds of nutrients the body needs, we're really asking what kinds of nutrients the cells need.

### **The Six Classes of Nutrients**

There are some 50 or so different nutrients needed by the cells in the body on a regular basis, though in differing amounts. Fortunately, most foods contain more than just one of the nutrients. Otherwise, we'd have to eat more than 50 different foods each day.

The nutrients needed by the cells have been grouped into six basic classes or categories: proteins, fats, carbohydrates, minerals, vitamins, and water. Good nutrition is assured by selecting a variety of foods that, all together, provide the proper balance of nutrients from each of these six categories. A diet that is consistently deficient in nutrients from even just one of those categories will eventually lead to serious deterioration of health. So, when we refer to "a well-balanced meal," what we're really referring to is a well-balanced array of protein, fat, carbohydrate, minerals, vitamins, and water.

### **Protein**

Protein builds and repairs all body tissues (skin, bone, hair, blood, muscle, etc.), helps form antibodies to fight infection, and is a part of hormones and enzymes which are responsible for regulating body functions such as digestion and growth.

Protein is made up of chemical substances called amino acids. When we eat foods containing protein, two things happen. First, our bodies break down the protein into amino acids. Second, the cells in the body take those amino acids and rearrange them to build the protein needed for growth, for maintaining the body tissues, and for producing substances that help the body function properly.

New proteins are constantly being made by each cell, and they are an essential part of the structure, maintenance, and life of every cell in our body. The body can make its own supply of more than half of the needed proteins. Eight amino acids must come from food because the body cells cannot manufacture them or enough of them. They are called essential amino acids. The remaining 14 or so amino acids used by the body can be obtained from food, but the body can also manufacture them.





The amino acid makeup of a food protein determines its nutritive value. We call the protein in animal foods *complete* protein because it contains all the essential amino acids needed by the body for normal growth. We call the protein in plant foods *incomplete* protein because some of those essential amino acids are missing or are present in very small amounts.

By combining some plant food with some animal food, we get protein that's as good as if we used all animal food. Cereal with milk, macaroni and cheese, peanut butter sandwich and milk, spaghetti with meatballs, and lots of other dishes that we commonly eat are as good for us as eating all meat. With the proper know-how, it is also possible to combine plant proteins to get favorable combinations and amounts of the amino acids.

All food proteins taken in by the body, over and above what the body needs for building or repairing its cells and for certain other specific purposes, are used for energy. If the energy isn't used up, it will be converted into fat and stored by the body in that form. But we don't specifically need protein for energy. We can meet our energy needs from two other nutrient classes—fats and carbohydrates.

**What foods contain protein?**  
Protein is usually most highly concentrated in animal foods such as meat, fish, poultry, eggs, and cheese. Other important sources of protein are legumes (dried peas and beans), nuts, and peanut butter.

#### **Fat**

Fat has many functions in our bodies. It is a concentrated source of energy, supplying a large amount of energy in a small amount of food. Like the energy unused from protein, the energy unused from fat is stored as body fat. Body fat, in moderate amounts, is useful because it helps to pad the internal organs, insulates the body against heat and cold, and provides a reserve of energy. Some fats carry vitamins A, D, E, and K. Fat is needed for a healthy skin and helps delay hunger feelings.

Fatty acids are the building blocks of fat. Three molecules of fatty acid combined with one molecule of glycerol constitute a molecule of fat.

Fats are classified as saturated, polyunsaturated, or monounsaturated depending on the kind of fatty acids present. Most food fats are a combination of different saturated and unsaturated fatty acids.

Saturated fats are usually hard at room temperature. They occur in both animal and vegetable fats, but chiefly in animal fats such as butter or the fat in meat.

Polyunsaturated fatty acids are usually oils and are most abundant in plant seeds and fish oils. Vegetable oils such as cottonseed, corn, soybean, and safflower are about half polyunsaturated fat. Nearly all fats from plant sources are unsaturated. The only major exception is coconut oil, which is highly saturated.

Olive and peanut oil are examples of monounsaturated fatty acids.

#### **Carbohydrate**

Carbohydrate supplies food energy and helps the body make the best use of other nutrients. For most of us, carbohydrate provides roughly half of the day's food energy, and sugar accounts for over one-half of this. Like the energy from unused protein and unused fat, unused energy from carbohydrate will be stored as body fat.

Carbohydrate is found in a wide variety of foods and generally takes two common forms: sugars and "starches." Cane and beet sugar are pure carbohydrate. Syrups, honey, molasses, and products made with a lot of sugar, such as jelly and candy, are high in carbohydrate. Grains such as breads, cereals, pasta, rice, and flour are mainly starch. Less concentrated amounts of carbohydrate come from other foods like fruits, vegetables, and milk.



The carbohydrate in vegetables is mainly starch; in fruits and milk, mainly sugar.

As a general rule, the more moisture in fruits and vegetables, the less concentrated is the carbohydrate. Potatoes are a concentrated source of carbohydrate compared with vegetables high in water content, like lettuce and spinach. Dried fruits such as raisins or prunes are richer in carbohydrate than juicy ones such as oranges, grapes, and plums.

Sugars and sweets are almost pure carbohydrate. That is, there's very little else in them. But foods such as fruits, vegetables, breads, and cereals carry other nutrients, too, like minerals, vitamins, and, in the case of cereals, some proteins. Sugar, in moderation, is a part of an acceptable diet, but only a part. Sugar and sugary foods don't provide the bulk, or roughage, that many other foods provide. We need that roughage, not only to stimulate the walls of the intestine for proper elimination, but for healthy teeth and gums as well. Fruits, vegetables, and whole grain cereals are good sources of roughage.

### Minerals and Vitamins

The body needs as many as 18-20 different minerals to regulate the body processes and build certain body structures. Some of the essential minerals are calcium, phosphorous, iodide, fluoride, and iron. Many minerals are dissolved in body fluids or form part of compounds that are essential for proper body functioning. Some minerals are part of soft tissues, and some form hard tissue such as bone and teeth.

More than a dozen vitamins have been identified as essential. They serve in a variety of ways. Fortunately, a well-chosen assortment of foods will provide all the vitamins a person needs. Unused vitamins are either stored by the body for future use, or eliminated by excretion in the urine.

The following table lists some of the important minerals and vitamins, and indicates some of the ways the body uses them and some of the food sources from which they are obtained.

## NUTRIENTS AND FOODS FOR HEALTH

| MINERALS          | BODY FUNCTION   | FOOD SOURCE   |
|-------------------|---|---|
| <b>CALCIUM</b>    | Helps build strong bones and teeth. Helps blood clot. Helps muscles and nerves function normally. Needed to activate certain enzymes which help change food into energy.                                  | Milk and milk products such as cheese; sardines and shellfish; dried fruits; soybeans.  |
| <b>PHOSPHORUS</b> | Helps build strong bones and teeth. Needed by certain enzymes which help change food into energy.   | Meat; fish; poultry; dried peas and beans; milk and milk products; egg yolk; whole grain bread and cereal.  |
| <b>IRON</b>       | Combines with protein to make hemoglobin, the red substance in the blood that carries oxygen from lungs to cells, and myoglobin which stores oxygen in muscles. Needed to prevent iron deficiency anemia. | Liver, red meats; shellfish; egg yolk; dark green leafy vegetables; dried peas and beans; dried prunes, raisins, and apricots; molasses; whole grain and enriched bread and cereal. |
| <b>IODIDE</b>     | Necessary for proper functioning of thyroid gland. Prevents some forms of goiter.   | Seafoods and iodized table salt.  |
| <b>FLUORIDE</b>   | Helps prevent tooth decay in children and brittle bones in older persons.   | Fluoridated water supplies, either those fluoridated naturally or by man.   |

## NUTRIENTS AND FOODS FOR HEALTH

| VITAMINS | BODY FUNCTION  | FOOD SOURCE  |
|----------|--|--|
| <b>C</b> | Helps bind cells together and strengthens walls of blood vessels. Needed for healthy gums. Helps body resist infection. Promotes healing of wounds and cuts. | Certain fruits and vegetables such as citrus fruits and juices, broccoli, strawberries, tomatoes, cauliflower, raw cabbage, melons, green leafy vegetables, and potatoes cooked in skin. |
| <b>A</b> | Helps keep the skin healthy. Helps eyes adjust to dim light. Promotes growth and development. Helps build resistance to infection.                           | Liver; fish liver oils; dark green leafy vegetables; deep yellow fruits and vegetables; egg yolk; butter; fortified margarine; whole milk; vitamin A fortified skim milk.                |
| <b>D</b> | Helps the body absorb calcium and phosphorus which build strong bones and teeth.   | Vitamin D fortified milk; liver; fish liver oils; egg yolk.  |



## NUTRIENTS AND FOODS FOR HEALTH

| VITAMINS                          | BODY FUNCTION  | FOOD SOURCE   |
|-----------------------------------|--|---|
| <b>B<sub>1</sub> (THIAMIN)</b>    | Promotes normal appetite and digestion. Necessary for a healthy nervous system. Needed in certain enzymes which help change food into energy.  | Liver; meat (especially pork); dried peas and beans; wheat germ; whole grain and enriched bread and cereal.                                     |
| <b>B<sub>2</sub> (RIBOFLAVIN)</b> | Helps cells use oxygen. Helps maintain good vision. Needed for smooth skin. Helps prevent scaling or cracking of skin around mouth and nose. Needed in certain enzymes which help change food into energy. | Liver; milk and milk products, such as cheese; green leafy vegetables; meat; eggs; whole grain and enriched bread and cereal.                   |
| <b>NIACIN</b>                     | Promotes normal appetite and digestion. Necessary for a healthy nervous system. Needed in certain enzymes which help change food into energy.  | Liver; meat; fish; poultry; green vegetables; nuts (especially peanuts); whole grain bread and cereal (except corn); enriched bread and cereal. |
| <b>B<sub>12</sub></b>             | Helps prevent anemia, along with vitamin B <sub>6</sub> and folic acid.  | Foods of animal origin only, especially liver and other organ meats; cheese; milk; eggs.  |

## Water

Water, though often overlooked, is an essential nutrient. As a matter of fact, one can survive for a longer period of time without food than one can without water. It's part of every cell in every tissue of the body. Water is the medium of body fluids, secretions, and excretions. It carries food materials from one part of the body to the other. It is the solvent for all products of digestion. It regulates body temperature by evaporation through the skin and lungs.

Besides drinking water, we get water from all beverages and most foods. For example, fruits and vegetables contain 75% to 95% water, meat contains 50% to 70% water, and bread contains about 35% water. Our everyday drinking water has minerals in it. Fluoridated water is the most reliable source of the mineral nutrient fluoride. Water is one of the best nutrition friends our body has!

## The Recommended Dietary Allowances (RDA's)

The Recommended Dietary Allowances (RDA's) are the levels of intake of essential nutrients considered by the Food and Nutrition Board of the National Academy of Sciences, on the basis of available scientific knowledge, to be adequate to meet the known nutritional needs of practically all healthy persons. The RDA's are reviewed and modified periodically as new knowledge becomes available.

Don't feel that malnutrition will occur whenever the requirements are not completely met, for these are not the nutritional requirements of individuals; they are goals for planning food supplies and diets. These allowances have been widely used as guides, in planning nutritionally adequate diets for population groups. Although not all nutrients are listed in this table, it is assumed that a diet which meets these recommendations, and is derived from a wide variety of different foods, will also meet the body's needs for all other nutrients.

## Now that you've completed Program 3 . . .

You've learned about the six major nutrient categories, and you've touched briefly on the 50 or so other nutrients that we know are necessary for life. But has it ever occurred to you that there may be essential nutrients that we still don't know about? Nutrients that we're sure to get by eating a balanced diet, but which we can't get from pills because we don't even know to put them into the pills. What could this mean in relationship to the Type A lunch you serve everyday? Maybe it provides even more reason to justify eating the variety of foods that the Type A lunch provides.

### **Basic Points to Remember**

**1.**

The human body is composed of millions of cells, all of which must be provided with nutrients.

**2.**

The six basic categories of nutrients are: protein, fats, carbohydrates, minerals, vitamins, and water.

**3.**

Protein is made up of substances called amino acids.

**4.**

Protein is most highly concentrated in animal foods.

**5.**

Fat, an important part of our diet, is our most concentrated form of energy.

**6.**

There are various kinds of fat in foods: saturated fats, polyunsaturated fats, and monounsaturated fats.

**7.**

Cholesterol is a fat-like material present in animal foods but not in vegetable foods.

**8.**

Carbohydrates are found in a wide variety of foods and generally take two forms: sugars and "starches."

**9.**

Minerals help regulate the body processes and provide the rigid structure of bones and teeth. The body needs as many as 18 to 20 different minerals.

**10.**

More than a dozen vitamins have been identified as essential.

**11.**

Water is an essential nutrient, one that we often overlook, and it frequently provides some minerals.

## Some Useful Words

### Amino Acids

Chemical substances that make up protein. Also the products of digestion of protein. In the body cells, amino acids are rearranged to build the protein needed for growth, for maintaining the body tissues, and for producing substances that help the body to function properly. A number of amino acids are manufactured by the body.

### Essential Amino Acids

The eight amino acids which must come from food, because the body cells cannot manufacture them or enough of them. The remaining 14 or so amino acids used by the body are also obtained from food, or the body can manufacture them.

### Legumes

Plants, such as peas and soybeans, which grow a pod containing seeds.

### Cholesterol

A fatty substance found in animal foods, and also manufactured by the body.

### Protein

A nutrient made up of substances called amino acids. Used for building and repairing body cells.

### Fat

A nutrient. Most concentrated source of energy. Serves as the carrier of fat-soluble vitamins. Some fats are sources of essential fatty acids.

### Carbohydrate

A nutrient. Takes two common forms: sugars and "starches." Furnishes energy for body processes and to support activity and growth.

### Minerals

A nutrient category which includes calcium, phosphorus, iodide, fluoride, and iron. Regulates the body processes and provides rigidity to body structures, such as bones and teeth.

### Vitamins

A nutrient category. Contribute to body functioning and health.

### RDA

Recommended Dietary Allowances. Suggest amounts of nutrients to use as goals in planning diets. Prepared by the Food and Nutrition Board of the National Academy of Sciences.

### Nutrients

Substances provided by food that are essential for the building, upkeep and repair of body tissues, and for the efficient functioning of the body. Everyone needs the same nutrients throughout life but in different amounts. All nutrients are available through food.

### Bulk

Undigested fiber of cellulose needed to stimulate the walls of the intestine for proper elimination. Fruits, vegetables, and whole grains contribute bulk to the diet.

## LOOK AHEAD to Program 4 "What's a Balanced Diet?"

- ☐ What is a balanced diet?
- ☐ What are the basic four food groups?
- ☐ What does each of the basic four food groups contribute to the diet?
- ☐ Which foods are included in each of the basic four food groups?
- ☐ Do all foods fit into the basic four food groups?
- ☐ How can the Daily Food Guide be used?

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words.



# 4

## WHAT'S A BALANCED DIET?

As we learned in Program 3 there are six basic categories of nutrients and the Recommended Dietary Allowances (RDA's) indicate the amount of each nutrient that ideally should be included in one's daily diet. The next step is to translate these nutrient needs into everyday foods by using the Daily Food Guide.

### The Basic Four Food Groups

A balanced diet is one that includes a sufficient variety of foods to insure that an individual takes in all the nutrients his body needs on a regular basis. As we've seen, there are six basic classes of nutrients required by the body's cells: proteins, fats, carbohydrates, minerals, vitamins, and water. All these nutrients are in foods. For convenience in thinking about which foods supply which nutrients in abundance, nutritionists have divided most food into four basic food groups: meat, vegetables and fruits, breads and cereals, and milk.

The Daily Food Guide pictured on the next page helps translate nutrient needs into everyday foods. As we learned in a previous lesson, the Food and Nutrition Board of the National Research Council has established Recommended Dietary Allowances (RDA's) for some nutrients. That is, the amount of each nutrient that ideally should be included in one's daily diet. The Food Guide is based on this standard, translating nutrient need into terms of foods widely available. Minimum servings from each food group, taken together, will go a long way toward meeting the RDA's.

The Type A lunch pattern has been developed especially to help in the wise choice of foods that will provide one-third or more of the nutrients boys and girls need each day. It includes foods from all the food groups of the Daily Food Guide, and a specified amount of butter or fortified margarine.

Each of the four food groups provides certain specific nutrients, but they vary in the amounts they provide in a serving. They are enough alike that we can make different selections from a group with the assurance that our choice will contribute their share of nutrients toward a good diet. There is ample choice within each food group to allow for varied meals from day to day, to accommodate children's food likes and dislikes, and to consider their cultural, ethnic, and religious food practices in menu planning. Foods from all four groups work together to supply the nutrients and energy necessary for health and for growth. Repeatedly omitting foods from any one of the groups may lead to poor nutrition, and ultimately to poor health.



## **Meat Group**

### **Foods Included**

Beef, veal, lamb, pork, variety meats such as liver, heart, kidney.

Poultry and eggs.

Fish and shellfish.

As alternates—dry beans, dry peas, lentils, nuts, peanuts, peanut butter.

### **Amounts Recommended**

Choose 2 or more servings every day.

Count as a serving: 2 to 3 ounces (not including bone weight) cooked lean meat, poultry, or fish. Count as alternates for ½ serving meat or fish: 1 egg, ½ cup cooked dry beans, dry peas, or lentils, or 2 tablespoons peanut butter.

### **Nutrients Supplied**

Major source of protein in the diet. Also a good source of iron, thiamin, riboflavin, niacin, other vitamins and minerals, and food energy.

The meat group is, for most people, the major source of protein in the diet, as well as a number of vitamins and minerals. It includes meat, fish, and poultry, plus a few other foods which are meat alternates.

Eggs are included in the meat group because they are such a good source of protein. So are legumes (beans, peas, and peanuts). At first glance these seem to belong to other food groups. Not so, say the nutritionists. The foods included

in the meat group are grouped together for two reasons—they provide roughly the same cluster of nutrients (protein, minerals, and vitamins) and they often are used as main dishes in meals.

The whole point of arranging foods into basic groups is to insure a balanced diet. Does this mean that any food chosen from the meat group is as good as any other in the same group? Not quite. For one thing, a lot depends upon how much of what you buy is truly edible. Bones, gristle, and thick rinds of fat sometimes come with the meat you buy. In comparing one meat group food with another, you should compare only the nutritional value of what actually gets eaten.

Although Americans are eating more and more meat, we still seem to avoid the nutritious variety meats, such as liver, heart, and kidneys. Remember that these, too, are high in protein as well as being excellent sources of iron and the B vitamins.

## **Vegetable and Fruit Group Foods Included**

All vegetables and fruits.

### **Sources of Vitamin C**

Good sources: Grapefruit or grapefruit juice, orange or orange juice, cantaloup, guava, mango, papaya, raw strawberries, broccoli, Brussels sprouts, green pepper, sweet red pepper.

Fair sources: Honeydew melon, lemon, tangerine or tangerine juice, watermelon, asparagus tips, raw cabbage, cauliflower, collards, garden cress, kale, kohlrabi, mustard greens, potatoes and sweet potatoes cooked in the jacket, rutabagas, spinach, tomatoes or tomato juice, turnip greens.

### **Sources of Vitamin A**

Dark green and deep yellow vegetables and a few fruits, such as apricots, broccoli, cantaloup, carrots, chard, collards, cress, kale, mango, persimmon, pumpkin, spinach, sweet potatoes, turnip greens and other dark green leaves, winter squash.

### **Sources of Iron**

Dried fruits, such as apricots, dates, figs, peaches, prunes, raisins; dark green leafy vegetables, such as beet greens, chard, collards, endive, escarole, kale, mustard greens, spinach, turnip greens; squash; sweet potatoes; canned tomatoes.

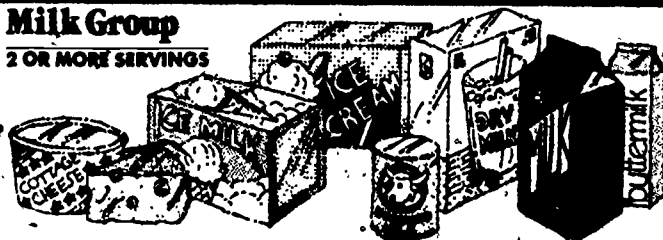
# A DAILY FOOD GUIDE

SOME CHOICES FOR THRIFTY FAMILIES  
EVERY DAY EAT FOODS FROM EACH OF THE FOUR FOOD GROUPS



## Milk Group

2 OR MORE SERVINGS



## Meat Group

2 OR MORE SERVINGS



## Vegetable-Fruit Group

4 OR MORE SERVINGS



## Bread-Cereal Group

(WHOLE GRAIN OR ENRICHED)

4 OR MORE SERVINGS



CHOOSE EXTRA SERVINGS  
FROM THE FOUR FOOD GROUPS AND,  
AS NEEDED, OTHER FOODS SUCH AS BUTTER OR MARGARINE,  
SALAD DRESSINGS AND OILS, AND JAMS AND JELLIES  
TO ROUND OUT MEALS



### Amounts Recommended

Choose 4 or more servings every day, including:

1 serving every day of a good source of vitamin C or 2 servings of a fair source.

1 serving, at least every other day, of a good source of vitamin A. If the food chosen for vitamin C is also a good source of vitamin A, you can omit an additional vitamin A food.

The remaining 1 to 3 or more servings may be of any vegetable or fruit, including those that are valuable for vitamin C, vitamin A, and iron.

Count as 1 serving:  $\frac{1}{2}$  cup of vegetable or fruit, or a portion as ordinarily served, such as 1 medium apple, banana, orange, or potato; half a medium grapefruit or cantaloup; or the juice of 1 lemon.

### Nutrients Supplied

Vegetables and fruits as a group are important sources of minerals and vitamins.

They also supply fiber, or roughage, needed for proper functioning of the intestinal tract. Many contain a large amount of water.

Vegetables and fruits can complement any meal. Served cooked, raw, or in juice form, they add colorful eye-appeal, interesting flavors, and textural contrasts with other foods served.

The nationwide consumption of vegetables and fruits has been declining in recent years.

Teenagers, in particular, are

notorious for omitting these foods from their diets. If there is any single eating habit that's worth starting, it's the habit of eating vegetables and fruits.

Whether the vegetables and fruits are fresh, canned, or frozen, they contain comparable amounts of nutrients. Today's methods of food handling, food processing, and food transportation are all designed to preserve the nutritive value of the food.

### Milk Group

#### Foods Included

Milk: fluid whole, evaporated, skim, dry, buttermilk.

Cheese: cottage; cream; cheddar-type, natural or process.

Ice cream, ice milk.

### Amounts Recommended

Some milk every day for everyone. Below are recommended amounts of 8-ounce cups of whole fluid milk:

Children under 9—2 to 3 cups

Children 9 to 12—3 or more

Teenagers—4 or more

Adults—2 or more

Pregnant women—3 or more

Nursing mothers—4 or more

Part or all of the milk may be fluid skim milk, buttermilk, evaporated milk, or dry milk.

Cheese and ice cream may replace part of the milk. We determine equivalent amounts on the basis of calcium content. Common portions of various kinds of cheese and ice cream and their milk

equivalents in calcium are:

- 1-inch cube cheddar-type cheese =  $\frac{1}{2}$  cup milk
- $\frac{1}{2}$  cup cottage cheese =  $\frac{1}{3}$  cup milk
- 2 tablespoons cream cheese = 1 tablespoon milk
- $\frac{1}{2}$  cup ice cream or ice milk =  $\frac{1}{3}$  cup milk

### Nutrients Supplied

Milk products are our leading source of calcium as well as high quality protein, riboflavin, vitamin A, vitamin D, other vitamins and minerals, and food energy.

Milk is available in various forms. It may be fresh, fluid, evaporated, condensed, or dried. It may be whole milk which contains all of its original butterfat, or it may be partially or entirely skimmed. Dry milk and evaporated milk are also available in both whole and skim forms. Any of these forms of milk can meet all or part of the day's milk quota.

To some extent, cheese, ice cream, and other milk foods are satisfactory replacements for part of the day's milk needs, but they shouldn't be relied on to do the whole job. There's really no substitute for a couple of glasses of milk. This is especially true for teenagers, whose diets, on a national average, are low in calcium.

For young children milk is an especially important food. Young children derive as much as 20% or more of their calories, a like amount of protein, and as much as 70% or more of their calcium, from milk and milk products.

Persons who are weight conscious and trying to cut down on calories needn't exclude foods from this group from the diet. Today's markets have dairy cases filled with low-fat products. Foods like skim milk and cottage cheese provide the calcium and protein you need without adding too many calories.

Milk that has been skimmed has had its content of vitamin A and D reduced. Some processors, therefore, add vitamin A and D to the finished skimmed product. This is important. Read labels carefully and try to select those milk items which have been fortified.

### **Bread and Cereal Group Foods Included**

All breads and cereals that are whole grain, enriched, or restored. Check labels to be sure.

Specifically, this group includes breads, cooked cereals, ready-to-eat cereals, cornmeal, crackers, flour, grits, macaroni and spaghetti, noodles, rice, rolled oats, quick breads and other baked goods if made with whole-grain or enriched flour. Bulgur and parboiled rice and wheat also may be included in this group.

### **Amounts Recommended**

Choose 4 servings or more daily. If no cereals are chosen, have an extra serving of breads or baked goods. Count as 1 serving: 1 slice of bread; 1 ounce ready-to-eat cereal;  $\frac{1}{2}$  to  $\frac{3}{4}$  cup cooked cereal, cornmeal, grits, macaroni, noodles, rice, or spaghetti.

### **Nutrients Supplied**

Foods from this group supply important amounts of many of the B-vitamins. They also contribute worthwhile amounts of iron, protein, and calories. Whole grain products furnish fiber, or roughage, needed for proper functioning of the intestinal tract.

Traditionally, breads or cereals are on the table at practically every meal we eat. They are nutritious and are an important source of calories. In fact, 25% of the calories and some of the protein Americans eat come from this group of foods.

Any product that is made of enriched flour or cereal is more nutritious than the same product made with unenriched flour.

Whole grains are those that contain all of the germ and outer layers of the grain: whole wheat flour, dark rye flour, brown rice, whole ground cornmeal, and the products made from them. Whole grain products are important, too, for the fiber they provide, which helps to keep the intestinal tract functioning properly and in good condition. Enriched foods are ones to which specified amounts of iron, thiamin, riboflavin, and niacin have been added. Be sure to buy products made of whole grain or that are labeled enriched, so they may be grouped under breads and cereals.



### Other Foods

When we discuss food groups we talk about the "Basic Four," but there are some other foods which do not fall into any of these four groups. These other foods are used to round out the overall diet and to help meet energy and nutrient needs. They are often ingredients used in a recipe or added to other foods during preparation, like sugar, oils, butter or margarine. Many common snack foods are included, such as candy, cakes, potato chips, pretzels, and soft drinks.

Remember, back when we talked about the reasons people eat as they do, we spoke of lots of reasons other than the need to nourish our bodies. Wanting to be in style, to be sociable, to save time, or to have pleasant taste sensations influences why we eat what we eat. These are some of the reasons snack foods are so popular.

In looking at our total diet, it's important to count everything we eat as part of our daily food intake—including snack foods and other foods which are not in the basic four food groups. As part of our food intake, they should become part of a good diet instead of a substitute for a good diet. Their use may need to be limited if we are to get recommended amounts of protein, minerals, and vitamins without getting too many calories. Studies indicate that the American diet often provides too many calories, too much fat, and too much sugar. A variety of foods helps safeguard nutrient levels. Moderation in the use of foods that provide fat and sugar may be needed to avoid obesity and still get the vitamins, minerals, and protein needed.

## Basic Points to Remember

1.

A balanced diet is one that includes a sufficient variety of foods to insure that an individual takes in all the nutrients his body needs on a regular basis.

2.

The basic four food groups are meat, vegetables and fruits, bread and cereals, and milk.

3.

The meat group is, for most people, the major source of protein in the diet. It also provides iron, thiamin, riboflavin, niacin, other nutrients and food energy.

4.

The vegetable and fruit group provides most of the vitamins A and C, some iron, and other vitamins and minerals, plus fiber or roughage. Many foods in this group contain a large amount of water.

5.

The bread and cereal group contributes a number of the B vitamins, calories, protein, iron, and other minerals. Whole grain products also furnish fiber or roughage.

6.

The milk group is our leading source of calcium, riboflavin, and phosphorus. It also provides some protein, food energy, and may provide vitamins A and D.

7.

The "Daily Food Guide" helps translate nutrient needs into everyday foods.

8.

Foods for all four groups work together to supply the nutrients and energy necessary for health and for growth.



## **Some Useful Words**

### **Balanced Diet**

A diet made up of a variety of foods which provide all the nutrients needed in proper or balanced amounts on a regular basis.

### **Basic Four Food Groups**

Meat, vegetables and fruits, bread and cereals, and milk. Each food group is relied on for providing certain specific nutrients.

### **Enriched Foods**

Foods to which specific nutrients have been added as established in a Federal standard of identity and quality (for example, enriched bread). The amounts added generally are moderate and include those commonly present at even lower levels.

### **Other Foods**

Foods which do not fall into one of the basic four food groups. Used to round out the overall diet and to help meet energy and nutrient needs.

### **Daily Food Guide**

A guide to use when translating nutrient need into terms of foods widely available.

### **Fortified Foods**

Foods to which specific nutrients have been added. The amounts added are usually in excess of those normally found in the food because of the importance of providing additional amounts of the nutrients to the diet. Some foods are selected for fortification because they are an appropriate carrier for the nutrient (for example, milk is frequently fortified with vitamin D).

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

## LOOK AHEAD to Program 5 "Three Meals A Day, Plus"

- ☐ Do you believe that people who are poorly fed always look poorly fed?
- ☐ Why is breakfast important to children?
- ☐ Are you familiar with the meal components of school breakfast programs?
- ☐ What food groups do they represent?
- ☐ What are ways in which you adjust the Type A pattern to meet the food preferences of the different students served in your school cafeteria?
- ☐ What are some of the nutritious snack foods you serve in your school meals?
- ☐ Which of these foods do your students like best?
- ☐ What tools and guidelines do you use in planning nutritious meals?

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words.

# 5

## THREE MEALS A DAY, PLUS

**It's not always realistic to plan menus on the assumption that everyone's nutrient needs must be met by three meals a day. While the "three meals a day" pattern is generally thought of as standard or normal, Americans vary that pattern considerably. In fact, America may be called a country of snackers, with the day consisting of one continuous meal. Should we plan meals as if we all eat only three meals a day, or should we plan as if snacking is a part of the daily food intake and not something outside it?**

The concept of eating three meals a day has been with us for many, many years. Do you or the children in your school sit down and eat only three meals a day every day? Do the meals always provide a well-balanced diet?

The "three meals a day" pattern is a manageable concept for menu planners to work with. In fact, a general plan for all the meals for a week can save time, work, and money. It will also help avoid humdrum meals. Many people factor after the "three meals a day" pattern. People snack between meals, munch in front of the television in the evening, have five or six mini-meals evenly spaced throughout the day, find food available 24 hours a day at food service establishments usually close to home, frequent fast food operations and use convenience foods, want fast, quick meals to keep pace with their busy schedules.

As mentioned in Program 4, a balanced diet is one that includes a sufficient variety of foods to insure that an individual takes in all the nutrients his body needs on a regular basis. Using the "three meals a day" concept as a benchmark helps people plan a balanced food intake. People can then adapt their eating pattern to suit their individual habits, tastes, needs, and preferences.

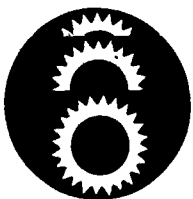
### Breakfast

The word breakfast means literally to break the fast which results from 8 hours or more of going without food during the night. Breakfast can set the stage for the activities of the day, especially if it provides a substantial share (approximately one-fourth) of our daily nutrient needs. It's very difficult to get all the nutrients we need unless we eat a good breakfast, and the body needs energy and nutrients to function at its best.

Studies have shown that people who have eaten a good breakfast perform better than those who have eaten a poor one or have skipped breakfast altogether. Teachers have repeatedly observed that children who do not eat breakfast often do not concentrate well in school. They are restless, inattentive, and not alert.

What is a good breakfast? Here's a three-point test of a good breakfast:

- It gives you protein, vitamins, and minerals needed to build and repair the body and to help keep you healthy.
- It provides fuel for body energy.
- It tastes good.



Here are some good breakfast patterns:

- Fruit, cereal or bread, milk to drink, other beverage if desired.
- Fruit, cereal or bread, or both, egg, beverage.
- Fruit, cereal or bread, or both, eggs with meat, such as bacon, sausage, hash, or fish, beverage.

Breakfast should be the most important meal of the day for everyone, including children. More and more schools and school food service workers like you are playing an increasingly important and responsible role in the proper nutrition of our young population by starting them off with their first meal of the day.

#### **The School Breakfast**

Legislation passed by Congress in 1966 instituted the National School Breakfast Program because so many of the Nation's children were going to school hungry. A meal plan was developed that would allow for variety in the kinds of foods offered for breakfast as well as provide important nutrients. The plan was developed for breakfasts at school, based on food needs for 9- to 12-year-old boys and girls.

As specified in school breakfast regulations, section 220.8, the school breakfast pattern shall contain, as a minimum, each of the following food components in the amounts indicated:

#### **Fluid Milk**

One-half pint of fluid milk served as a beverage or on cereal or used in part for each purpose.

Milk is the leading source of calcium, it also provides good quality protein, riboflavin, vitamin A, and other nutrients. Additional milk used in preparation of breakfast dishes steps up the nutritive content of the meal.

#### **Fruit, Fruit or Vegetable Juice**

A ½ cup serving of fruit or full-strength fruit or vegetable juice.

Breakfast is an excellent time to serve a vitamin C food.

Citrus fruits, such as orange or grapefruit sections, or orange and grapefruit juices, are outstanding for vitamin C. Other food choices for vitamin C include tomato juice, strawberries, and cantaloup, in season. Dried fruits, such as raisins and prunes, are valuable for iron.

#### **Bread or Cereal**

One slice of whole-grain or enriched bread; or an equivalent serving of cornbread, biscuits, rolls, muffins, doughnuts, etc., made of whole-grain or enriched meal or flour or ¾ cup serving of whole-grain cereal or enriched or fortified cereal; or an equivalent quantity of any combination of these foods.

These foods provide some protein, iron, the B-vitamins (thiamin, riboflavin, and niacin), and calories.

To improve the nutrition of participating children, breakfasts shall also include as often as practical:

#### **Meat and Meat Alternates**

One egg; a 1-ounce serving (edible portion as served) of meat, poultry or fish; 1 ounce of cheese; 2 tablespoons of peanut butter; or an equivalent quantity of any combination of any of these foods.

Breakfast should include a meat or meat alternate daily, if possible. These foods add to the quality of breakfast and are important sources of vitamins and minerals.

#### **Additional Foods**

May be served with breakfast as desired.

Additional foods help round out the breakfast, satisfy appetites, and meet children's food needs. They may include the following:

- Larger servings or seconds of foods required in the breakfast.
- Foods that help to add popular appeal to the breakfast (potatoes, bacon).
- Spreads on bread (butter or fortified margarine, jams, jellies, honey, syrup).
- Sweeteners for cereal and pancakes (sugar, brown sugar, honey, and syrup).

## **Lunch**

Generally, we consider lunch the second meal of our day. It's a very important meal to most people. Whether we speak of school students, office workers, construction workers, school food service personnel, or any other group, lunch is much more than just a time to eat. It's that long-awaited break in the daily routine, a time to relax, a time to be with friends, a chance to run errands, and a time just to do what you want to do.

Of course, having something to eat quiets the hunger pangs, provides energy to continue on with the day, and supplies more of the nutrients needed. The noon meal for a child should have a meat or meat alternate, some foods for energy, and some foods high in minerals and vitamins.

### **The School Lunch**

The meal pattern you follow as part of the National School Lunch Program is known as the Type A pattern. As mentioned in a previous program it includes foods from all the food groups of the "Daily Food Guide" and a specified amount of butter or fortified margarine.

The nutritional goal for school lunches is to furnish at least one-third of the Recommended Dietary Allowances (RDA's) of the National Research Council for children of various age groups. The Type A lunch requirements provide the framework for nutritionally adequate school lunches. The kinds and amounts of foods listed in the Type A lunch pattern are based on the 1968 RDA's for 10- to 12-year-old boys and girls.

As specified in the school lunch regulations, a Type A lunch shall contain as a minimum each of the following food components in the amounts indicated:

#### **Meat and Meat Alternate**

Two ounces (edible portion as served) of lean meat, poultry or fish; or 2 ounces of cheese; or one egg; or  $\frac{1}{2}$  cup of cooked dry beans or dry peas; or 4 tablespoons of peanut butter; or an equivalent of any combination of the above-listed foods. To be counted in meeting this requirement, these foods must be served in a main dish or in a main dish and one other menu item to provide protein, iron, B vitamins (thiamin, riboflavin, niacin) and other nutrients.

#### **Vegetables and Fruits**

Three-fourths cup serving consisting of two or more vegetables or fruits or both. A serving ( $\frac{1}{4}$  cup or more) of full-strength vegetable or fruit juice may be counted to meet not more than  $\frac{1}{4}$  cup of this requirement to provide most of the vitamin

A and vitamin C and some of the iron and other vitamins and minerals.

#### **Bread**

One slice of whole-grain or enriched bread; or a serving of other bread, such as cornbread, biscuits, rolls, muffins made of whole-grain or enriched meal or flour, to provide some of the B vitamins (thiamin, niacin), minerals (especially iron), and calories.

#### **Butter or Fortified Margarine**

One teaspoon of butter or fortified margarine to provide some of the calories and vitamin A.

#### **Fluid Milk**

One-half pint of fluid milk as a beverage to provide most of the calcium and riboflavin, some protein, vitamin A, vitamin D (if fortified), phosphorus, and other nutrients.

Add other foods which are not part of the lunch requirements as needed to complete lunches, to help improve acceptability, and to provide additional food energy and other nutrients.

To help assure that all Type A lunches meet the nutritional goal, it is recommended that lunches include a vitamin A vegetable or fruit at least twice a week, a vitamin C vegetable or fruit several times a week, and several foods for iron each day.

It is also recommended that fat in the Type A lunch be kept at a moderate level and iodized salt be used in preparing lunches.

## THE TYPE A SCHOOL LUNCH GUIDE TO THE AMOUNTS OF FOOD FOR BOYS AND GIRLS OF SPECIFIED AGES

| Pattern  | Pre-school children<br>(3 up to 6 years) | Elementary school children<br>6 up to 10 years | 10 up to 12 years<br>(Type A Lunch) | Secondary school<br>girls and boys (12<br>up to 18 years)* |
|--|--|--|-------------------------------------|--|
| Meat and/or alternate: One of the following or combinations to give equivalent quantities: |  |  |                                     |  |
| Meat, poultry, fish  | 1½ ounces                                | 2 ounces                                       | 2 ounces                            | 3 ounces   |
| Cheese   | 1½ ounces                                | 2 ounces                                       | 2 ounces                            | 3 ounces   |
| Egg <sup>2</sup>   | 1  | 1  | 1                                   | 1  |
| Cooked dry beans or peas   | ¼ cup                                    | 1/3 cup  | ½ cup                               | ¾ to 1¼ cups   |
| Peanut butter  | 2 tablespoons                            | 3 tablespoons                                  | 4 tablespoons                       | 4 to 5 tablespoons   |
| Vegetable and/or fruit <sup>1</sup>  | ½ cup                                    | ¾ cup  | ¾ cup                               | 1 to 1½ cups   |
| Bread <sup>1</sup>   | ½ slice                                  | 1 slice  | 1 slice                             | 1 to 3 slices  |
| Butter or fortified margarine  | ½ teaspoon                               | 1 teaspoon                                     | 1 teaspoon                          | 1 to 2 teaspoons   |
| Milk   | ¾ cup <sup>1</sup>                       | ½ pint   | ½ pint                              | ½ pint   |

<sup>1</sup> When a range in amounts is given, the smaller amounts are suggested for girls and the larger amounts for older boys. An amount midway between the amounts shown is suggested for younger boys.

<sup>2</sup> When egg is served as the main dish in the lunch, use in addition

a half portion of meat or other meat alternate for all children except those 3 up to 6 years.

<sup>3</sup> Must include at least two kinds.

<sup>4</sup> Or a serving of combread, biscuits, rolls, muffins, etc., made of whole-grain or enriched meal or flour.

<sup>5</sup> If this is impractical, serve ½ pint.

\*NOTE: These portion sizes also serve as a guide for the amounts of foods to serve older boys and girls (12 and over) in the Special Food Service Program.

REMEMBER: The amounts of foods for all age groups, except 10 up to 12 years, are intended as guides and their literal use is not mandatory.

When a variety of the foods listed above are used in the amounts specified and in combination with other foods needed to satisfy the appetite, the lunches will make a significant contribution toward the daily dietary allowances recommended by the National Research Council for 10- to 12-year-old boys and girls.

See pages 40 and 41 for a detailed listing of foods for Type A school lunches and pages 42 and 43 for the steps to follow in planning a Type A menu.

Since younger children are not always able to eat the amounts specified in the Type A lunch, the regulations permit serving these children lesser

amounts of selected foods than are specified.

To meet the nutritional needs of teenagers, the regulations allow you to serve older boys and girls larger amounts of selected foods than specified in the Type A lunch requirements.



## TYPE A FOODS

### MEAT AND MEAT ALTERNATE

Cheese  
Cheddar  
Cottage  
Swiss  
Dry beans  
Dry peas  
Eggs  
Dried, whole  
Frozen, whole  
Shell  
Fish and shellfish  
Meat—canned, dried, fresh and frozen  
Beef  
Lamb  
Pork  
Veal  
Variety meats and luncheon meats  
Frankfurters  
Liver<sup>1</sup> and other organ meats  
Luncheon meats (including bologna, liverwurst)<sup>2</sup>  
Peanut butter  
Poultry—canned, fresh and frozen  
Chicken  
Turkey  
Protein-fortified, enriched macaroni (when mixed with meat, poultry, fish, or cheese)  
Textured vegetable protein (when mixed with meat, poultry, or fish)

### VEGETABLES AND FRUITS

Include a VITAMIN A vegetable or fruit at least twice a week<sup>1</sup>

#### Vegetables and Fruits

A ¼ cup serving (about 1500 or more International Units of vit. A)

Beet greens  
Carrots  
Chard, Swiss  
Chili peppers, red<sup>1</sup>  
Collards<sup>2</sup>  
Cress, garden<sup>3</sup>  
Dandelion greens<sup>3</sup>  
Kale<sup>3</sup>  
Mangoes<sup>3</sup>  
Mixed vegetables (frozen)

A ¼ cup serving (about 750-1500 International Units of vit. A)

Apricots  
Broccoli<sup>1</sup>  
Cantaloup<sup>1</sup>  
Chicory greens

A ½ cup serving (about 750-1500 International Units of vit. A)

Asparagus, green<sup>1</sup>  
Cherries, red sour  
Chili peppers, green (fresh)<sup>1</sup>  
Endive, curly  
Escarole  
Nectarines

Mustard greens<sup>1</sup>  
Peas and carrots (frozen)  
Peppers, sweet red<sup>1</sup>  
Pumpkin  
Spinach<sup>1</sup>  
Squash, winter (acorn, butternut, Hubbard)  
Sweet potatoes<sup>1</sup>  
Turnip greens<sup>1</sup>

Papayas<sup>1</sup>  
Purple plums (canned)

Peaches (except canned)  
Prunes  
Tomatoes<sup>1</sup>  
Tomato juice or reconstituted paste or puree<sup>1</sup>

Include a VITAMIN C vegetable or fruit several times a week<sup>2</sup>

#### Vegetables and Fruits

A ¼ cup serving (about 25 milligrams or more of vit. C)

Acerola  
Broccoli<sup>1</sup>  
Brussels sprouts  
Chili peppers, red<sup>1</sup> and green  
Guavas

A ¼ cup serving (about 15-25 milligrams of vit. C)

Cauliflower  
Collards<sup>1</sup>  
Cress, garden<sup>3</sup>  
Grapefruit  
Grapefruit juice  
Grapefruit-orange juice  
Kale<sup>1</sup>  
Kohlrabi

A ¼ cup serving (about 8-15 milligrams of vit. C)

Asparagus  
Cabbage  
Cantaloup<sup>1</sup>  
Dandelion greens<sup>1</sup>  
Honeydew melon  
Okra  
Potatoes (baked, boiled or steamed)  
Potatoes (reconstituted instant mashed—vitamin C restored)  
Raspberries, red  
Rutabagas

Orange Juice  
Oranges  
Papayas<sup>4</sup>  
Peppers, sweet, red<sup>4</sup> and green

Kumquats  
Mangoes<sup>4</sup>  
Mustard Greens<sup>4</sup>  
Pineapple juice (canned—vitamin C restored)  
Strawberries  
Tangerine juice  
Tangerines

Sauerkraut  
Spinach<sup>4</sup>  
Sweet potatoes<sup>4</sup> (except those canned in sirup).  
Tangelos  
Tomatoes  
Tomato juice or reconstituted paste or puree<sup>4</sup>  
Turnip greens<sup>4</sup>  
Turnips

Include these vegetables and fruits as needed

#### Vegetables and Fruits

Apples  
Applesauce  
Avocados  
Bananas  
Beans, green or wax  
Beans, lima, green  
Bean sprouts  
Beets  
Berries (black, blue, etc.)  
Celery  
Chinese cabbage  
Corn  
Cranberries  
Cranberry sauce  
Cucumbers<sup>5</sup>  
Dates  
Eggplant  
Figs  
Fruit cocktail  
Fruits for salads  
Grapes  
Lettuce

## FOOD IRON

### Meat and Meat Alternate

Dry beans and peas  
Eggs  
Meats in general especially liver (liverwurst) and other organ meats  
Peanut butter  
Poultry  
Shellfish, Tuna

#### Vegetables and Fruits

Apples (canned)  
Asparagus  
Beans—green, wax, lima  
Berries  
Dried fruits—apricots, dates, figs, peaches, prunes, raisins

Peas, green, immature  
Cowpeas, immature seed  
Purple plums (canned)  
Rhubarb

Squash  
Sweet potatoes  
Tomatoes (canned)  
Tomato juice, paste, puree

Vegetables:  
Dark green leafy—beet greens, chard, collards, endive, escarole, kale, mustard greens, spinach, turnip greens

Other dark green—broccoli, brussels sprouts

<sup>1</sup> Vitamin A vegetables and fruits—the vegetables and fruits listed below will supply at least 750 International Units of vitamin A per ¼ or ½ cup serving. When these vegetables and fruits are served at least twice a week in recommended amounts along with a variety of additional vegetables and fruits used to meet the ¼ cup vegetable and fruit requirement (10- to 12-year-old boys and girls), the 1 teaspoon of butter or fortified margarine, and the ½ pint fluid milk required in each lunch, the vitamin A content of the lunch will generally meet or exceed the 1500 International Units goal for the lunch.

<sup>2</sup> Vitamin C vegetables and fruits—the vegetables and fruits listed below will supply about 8 milligrams or more vitamin C (ascorbic acid) per ¼ cup serving. When these vegetables and fruits are served several times a week in recommended amounts along with a variety of additional vegetables and fruits to meet the ¼ cup vegetable and fruit requirement (10- to 12-year-old boys and girls), and the ½ pint of fluid milk required in lunches each day, the average daily vitamin C content of the lunch will generally meet or exceed the 13 milligram goal for the lunch.

<sup>3</sup> See listing of vitamin C foods.

<sup>4</sup> See listing of vitamin A foods.

<sup>5</sup> One ounce provides more than 1500 International Units of vitamin A.

|  | <b>BREAD</b><br>(enriched or whole grain)   | <b>BUTTER OR MARGARINE</b>  | <b>MILK</b>                                       | <b>OTHER FOODS</b>  |
|--|---|---|---|---|
| Mixed vegetables (canned)<br>Mushrooms<br>Olives<br>Onions<br>Parsley<br>Parsnips<br>Peaches (canned)<br>Pears<br>Peas and carrots (canned)<br>Peas, green, immature<br>Cowpeas, immature seed<br>Pimentos<br>Pineapple<br>Plums<br>Potatoes (mashed, fried, etc.)<br>Radishes<br>Raisins<br>Rhubarb<br>Squash, summer<br>Watercress<br>Watermelon<br>Fruit juices (apple, grape, pineapple, etc.) | <b>Group 1 (25 gms.)</b><br>Bagels<br>Biscuits<br>Boston brown bread<br>Buns (all types)<br>Cornbread<br>English muffin<br>French or Vienna<br>"Fry" bread<br>Italian bread<br>Muffins<br>Pretzels (soft)<br>Pumpernickel<br>Raisin bread<br>Rolls<br>Rye bread<br>Salt sticks<br>Stuffing (bread)<br>Syrian bread (flat)<br>White bread<br>Whole wheat bread<br><b>Group 2 (20 gms.)</b><br>Bread sticks (dry)<br>Graham crackers<br>Melba toast<br>"Pilot" bread<br>Rye wafers<br>Saltine crackers<br>Soda crackers<br>Taco shells<br>Zwieback<br><b>Group 3 (30 gms.)</b><br>Dumplings<br>Hush puppies<br>Meat pie crust<br>Meat turnover crust<br>Pancakes<br>Pizza crust<br>Popovers<br>Sopapillas<br>Spoonbread<br>Tortillas<br>Waffles | Butter<br>Margarine, fortified with 15,000 I.U. vitamin A per pound | Milk, fluid whole lowfat skim cultured buttermilk | <b>Cereals and Cereal Products</b><br>Bulgur<br>Cornmeal<br>Corn grits<br>Crackers (enriched)<br>Flakes<br>Hominy<br>Macaroni<br>Noodles<br>Rice<br>Rolled wheat and oats<br>Spaghetti<br><b>Desserts</b><br>Cakes<br>Confections<br>Cookies<br>Doughnuts<br>Ice cream<br>Pastry for pies and cobblers<br>Puddings<br><br><b>Miscellaneous</b><br>Bacon<br>Catsup<br>Chili sauce<br>Corn chips<br>Cream cheese<br>Gelatin, plain or flavored<br>Honey<br>Jams<br>Jellies<br>Lard<br>Molasses<br>Nuts<br>Pickles<br>Potato chips & sticks<br>Salad dressings<br>Salt pork<br>Shortening<br>Sirups<br>Other similar foods |
|  | <b>Breads, enriched or whole-grain</b><br>Biscuits<br>Boston brown bread<br>Cornbread<br>Loaf<br>Muffins<br>Rolls   |   |   | <b>Cereals and Cereal Products, enriched or whole-grain</b><br>Bulgur, Rice<br>Rolled wheat and oats<br>Macaroni, Spaghetti<br><br><b>Miscellaneous</b><br>Desserts made with enriched or whole-grain cereal, flour or meal<br>Molasses and sirups  |

Foods for Iron—because of the way iron is distributed among many foods (meats, vegetables, and fruits and breads), it is recommended that each lunch include several foods that are worthwhile sources of iron in sufficient quantities for the age group served. The list of foods for iron includes meat and meat alternate foods that supply at least 1.0 milligram of iron per serving and vegetables, fruits, breads and other foods that supply 0.6 milligram of iron per serving. The goal for iron for the lunch is 5.0 milligrams.



## STEPS IN PLANNING A TYPE "A" MENU

### STEP 1 SELECT A MEAT OR MEAT ALTERNATE

Include 2 ounces of cooked meat or the equivalent as specified in the Type A pattern.

Plan to use a meat or meat alternate in the main dish—alone or in casseroles, stews, loaves or use in the main dish and one other menu item—soups, salads, sandwiches or desserts. From a nutritional standpoint, it is desirable to include an "extra" source of protein (meat, cheese, peanut butter) when eggs, luncheon-type meats, dry beans or dry peas are used as the main meat or meat alternate in the lunch.

**REMEMBER**—Cooked dry beans or dry peas may be counted as a meat alternate or a vegetable—not as both in the same lunch.

—A 2-ounce portion of a commercially prepared cheese product (cheese food or cheese spread) will meet only  $\frac{1}{2}$  of the meat alternate.

—Textured vegetable protein products are allowed as a meat alternate when no more than 30 percent of the hydrated protein products are mixed with 70 percent uncooked meat, poultry or fish. (See USDA fact sheet.)

—Protein fortified, enriched macaroni-type products—1 ounce of dry macaroni or spaghetti ( $\frac{1}{2}$  to  $\frac{3}{4}$  cup cooked) may be used as 1 ounce of meat alternate when mixed with 1 ounce of cooked meat, poultry, fish or cheese in a main dish. (See USDA fact sheet.)

### STEP 2 CHOOSE THE VEGETABLES AND FRUITS

Include 2 or more servings of vegetables and/or fruits in amounts to total  $\frac{3}{4}$  cup.

Plan to use vegetables raw or cooked—alone or combined in salads, casseroles, stews.

Plan to use fruits raw or cooked—alone or combined in salads, fruit cups, desserts.

For lists of vegetables and fruits that are sources of vitamin A, vitamin C and iron, see the chart—Foods for Type A School Lunches.

**REMEMBER**—Full-strength vegetable or fruit juice may be counted to meet no more than  $\frac{1}{4}$  cup of the vegetable-fruit requirement. A  $\frac{1}{2}$  cup serving of a fruit juice drink (50 percent juice) provides  $\frac{1}{4}$  cup juice.

—Cereal foods such as macaroni, spaghetti, noodles, rice and hominy are considered Other Foods and do not meet the vegetable-fruit requirement.

—Menu items such as fruit cocktail, peas and carrots, and combination salads are considered as only one serving of a vegetable or fruit.

### STEP 3 DECIDE ON AN APPROPRIATE BREAD

Include 1 or more portions of bread made with whole-grain or enriched flour or meal.

Plan to use bread as an accompaniment to the lunch—or in sandwiches.

Plan to use a bread which will "go well" with the main dish and other items in the lunch.

**REMEMBER**—Unenriched crackers are considered Other Foods and do not meet the bread requirement.

### STEP 4 INCLUDE BUTTER OR FORTIFIED MARGARINE

Plan to use 1 teaspoon of butter or margarine as a spread for bread or in the preparation of the lunch.

**REMEMBER**—The use of butter or fortified margarine as a spread for bread is optional only when the required amount is used in food preparation.

### STEP 5 INCLUDE MILK

Plan to use  $\frac{1}{2}$  pint fluid milk as a beverage.

Use nonfat dry milk in cooking to keep cost down and nutritive value up.

**REMEMBER**—Nonfat dry milk and fluid milk used in food preparation may not be counted toward meeting the milk requirement.

### STEP 6 ADD A DESSERT AND OTHER FOODS AS NEEDED

Plan to use a dessert and Other Foods for appetite appeal and to increase the nutritive value of the lunch. Include foods for iron frequently.

**REMEMBER**—Desserts containing such foods as fruits, eggs, peanut butter, milk and enriched or whole-grain cereals, flour or meal are desirable.

\* Amounts of foods used as examples are for 10- to 12-year-old boys and girls. See Guide to the Amount of Food for Boys and Girls of Specified Age (page 39).

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**For Each Lunch Use:**

- 1 meat or meat alternate such as—
  - 2 oz. cooked meat, poultry or fish.
  - 2 oz. cheese.
  - 1 egg.
  - ½ cup cooked dry beans or dry peas.
  - 4 tablespoons peanut butter.
- or

**A combination of meat and meat alternates such as—**

- 1 oz. cooked meat + 1 oz. cheese.
- 1 oz. cooked meat + ¼ cup cooked dry beans.
- 1 oz. cooked poultry + ½ egg.
- 1 oz. cooked fish + 1 oz. cheese.
- 1 oz. cheese + 2 Tbsp. peanut butter.

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**Cheeseburger—Pickle Chips and Onion Ring Garnish**

A cheeseburger combines two of the meat and meat alternates listed in the Type A pattern and makes an inexpensive main dish. It is easy to prepare, cooks quickly and is an all-time favorite.

The pickle chips and onion rings are added for texture and flavor contrast.

Mayonnaise, mustard or catsup may be added for taste appeal.

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**For Each Lunch Use:**

- 2 servings such as—
  - ½ cup vegetable + ¼ cup fruit.
  - ½ cup vegetable + ¼ cup vegetable.
  - ¾ cup (6 Tbsp.) vegetable + ¾ cup (6 Tbsp.) fruit.
- or

**3 servings such as—**

- ¼ cup vegetable +
  - ¼ cup vegetable + ¼ cup fruit.
- ¼ cup vegetable +
  - ¼ cup vegetable + ¼ cup fruit juice.
- ¾ cup (6 Tbsp.) vegetable + ¼ cup (4 Tbsp.) vegetable + ¼ cup (2 Tbsp.) fruit.

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**Polka Dot Corn****Buttered Broccoli Spears**

These selections of vegetables with the cherries in the dessert meet the vegetable-fruit requirement. They make a pleasing color combination and the flavors are varied—from mild to strong and sweet to tart. The broccoli provides vitamin A, vitamin C and iron.

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**For Each Lunch Use:**

- 1 slice of bread—any variety or
- 1 roll, biscuit or muffin or
- 1 portion of cornbread or other hot bread.

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**Bun**

A school-made bun, plain or split, buttered and toasted, completes the cheeseburger—so popular with children.

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**For Each Lunch Use:**

- 1 tsp. butter or margarine on bread or in sandwich or
- ½ tsp. on bread + ½ tsp. in food preparation or
- 1 tsp. in food preparation.

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**Butter**

Butter on the bun or as a seasoning for the vegetables or in the Cherry Crisp adds taste appeal.

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**For Each Lunch Use:**

- ½ pint fluid milk.

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**Milk**

Milk is the beverage.

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**For Each Lunch Use:**

- A dessert and Other Foods as needed to complete the lunch.

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**Cherry Crisp**

The crisp topping adds energy and iron to the lunch. Rolled wheat used in the topping adds a different flavor.

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## Dinner

The dinner, or supper, meal traditionally has been a family time. It is usually the last planned food consumption period of the day, and marks our last major effort to get our daily quota of nutrients.

Dinners may be large or small, plain or fancy, formal or informal. Whatever they are, however, they should be well-balanced, attractive, and tasty. A dinner menu is usually planned around a main dish—a meat or meat alternate—with the other component parts of the meal complementing this choice. Appetizers from hot soup to a chilled fruit compote can whet the appetite. Dinner is a great time to serve a wide variety of vegetables. Salads can be light or hearty, taste sweet or tangy. There are breads of many descriptions to serve. Desserts round out the menu nutritionally and taste-wise.

Here are four examples of dinner menu patterns. The balance will depend on kinds and amounts of foods selected.

- Main dish, vegetables or salad, bread, dessert, beverage.
- Main dish, vegetables, salad, bread, dessert, beverage.
- Appetizer, main dish, vegetables, bread, dessert, beverage.
- Appetizer, main dish, vegetables, salad, bread, dessert, beverage.

## Snacks

Food eaten at times other than breakfast, lunch, and dinner are usually called snacks and must be considered in any discussion of meals. Snacks are an important part of our daily food intake, rounding out our need for nutrients and energy. They need to be planned as carefully and with as much thought as regular meals. Healthful snacks can add variety to our daily food intake and help provide our daily nutrients. Empty-calorie foods—those which primarily contribute calories to the diet—should only be selected if the daily nutrient needs have otherwise been met.

Raisins or peanuts are just as tempting as potato chips and more nutritious. Date nut bread made with enriched flour is nutritionally a better treat to offer than a frosted cake. Two or three varieties of chilled fruit juice will satisfy an after-school thirst as well as soft drinks. An apple, orange, or banana will help satisfy an appetite anytime.

## Tips for Menu Planning

Creative menu planning calls for originality, imagination, and a spirit of adventure. Personnel responsible for planning menus must recognize that appealing, interesting, and economical lunches can be planned from the simple box lunch to the lunch with many choices. Advances in food technology make it possible to serve Type A lunches in many forms, such as a cup-can lunch, a frozen TV-type lunch, or a lunch prepared from scratch. Keep the following points in mind:

### 1. Plan for Variety

#### Plan to include a wide assortment of foods.

- Do not use the same food on consecutive days, like meat balls with spaghetti on Monday and beef patties on Tuesday.
- Do not use the same food on the same day of each week. Each Monday should not be "hot dog day" nor Tuesday "chicken and mashed potato day."

#### Plan for a variety of types of lunches.

Plan lunches around casseroles, soup and sandwich, or main dish salads.

**Plan to include different forms of foods prepared in different ways.** Keep a file of various main dishes, different ways to prepare vegetables, and suggestions for variety in breads.

- Do not use two foods prepared in the same way in the same lunch, such as two creamed dishes or two casserole-type dishes.
- Do not use foods prepared in the same way each time they are served. Vegetables can be served raw or cooked, peeled or unpeeled, buttered, creamed, or scalloped with different sauces or seasonings. Be sure the different way of serving is as good or better than the usual way.

**Plan to include the food combinations most acceptable to students.** Include a surprise item or a small amount of a new or unfamiliar food. For example, when serving roast beef and mashed potatoes, add cheese balls rolled in nuts as a garnish on the salad, or add a small serving of an unfamiliar or less popular food such as a salad with fresh spinach or raw cauliflower.

## 2. Plan for Contrast

**Plan to use some crisp, firm foods with soft, creamy ones.**

- Use something crisp or firm in each lunch, such as a green salad, raw vegetable sticks, or hard rolls.
- Do not use too many starchy foods in the same menu. Macaroni and potatoes, noodles and corn, sweet potatoes and rice are too much starch for one meal.

**Plan to use a combination of mild and strong flavored foods.**

- Do not use too many foods with pronounced flavors like broccoli, onions, turnips, cabbage, and cauliflower in the same lunch.
- Do not use two foods of the same flavor together, like tomato juice and stewed tomatoes, or macaroni and cheese and a pineapple-cheese salad.

**Plan to use a pleasing combination of different sizes and shapes of foods.**

- Do not use too many chopped or mixed items in the same lunch (potato-ham-cheese casserole, tossed salad and fruit cup).
- Do not use too many foods of the same shape together (meat balls, steamed potatoes, whole beets and muffins; or cubed meat, diced potatoes, mixed vegetables and fruit cocktail).

## 3. Plan for Eye Appeal

**Plan to use combinations of colors that blend well.**

Consider the color of the dishes to be used as well as the colors of the foods.

- Use at least one or two colorful foods in each menu. The natural red, green, and orange colors of fruits and vegetables add eye appeal.
- Use colorful foods in combination with those of little or no color, such as broccoli spears with creamed potatoes and pimiento or green pepper in corn pudding.
- Use garnishes like a slice of radish or cucumber, stuffed olives, a tomato wedge, sieved egg, a bit of brightly colored fruit, a sprig of parsley or watercress, or a dash of paprika, to brighten food naturally lacking in color.

**Plan the way the menu items will be placed on the tray or plate.** Visualize how the foods will look when served and decide on the most attractive arrangement.

**4. Consider food habits, special occasions, climate or seasons, and the availability of foods.**

- Plan lunches that cater to the regional, cultural, and personal food preferences of students without reflecting your personal food prejudices.
- Along with well-liked or familiar foods, however, introduce new foods which supply the nutrients most often lacking in home diets.
- Plan lunches which have a festive air for school and national holidays, students' birthdays, parents' visiting days, and National School Lunch Week. Dress up the foods in these lunches and use imagination in planning the kinds of food to serve, the garnishes to use, the shapes of cookies, and cake decorations.
- Plan lunches that include more hot foods in cold weather and more cold foods and salads in warm weather.
- Plan lunches to serve fresh foods in season when they are plentiful and at the peak of quality.

**5. Remember your limitations of food cost, facilities, and personnel.**

**Plan lunches that are within the food budget.**

- Make maximum use of USDA-donated foods and foods in plentiful supply.
- Check food inventories and schedule the use of both USDA-donated and locally purchased foods.
- Use standardized recipes and portion control.
- Balance the use of high-cost and low-cost food items within the period of time for which lunches are planned.

**Plan lunches that can be prepared and served with the facilities and equipment available.**

- Consider oven, surface-cooking, steamer space, and refrigeration.
- Consider the numbers and kinds of serving tools and dishes needed to serve each menu.

**Plan lunches that can be prepared by the employees in the time available.**

- Consider the amount of hand preparation required for each menu.
- Schedule employees' time so that their particular skills can be used to best advantage.
- Balance workload from day to day and week to week.

## **Basic Points to Remember**

- 1.**  
It's not always realistic to plan menus on the assumption that everyone's nutritional needs must be met by three meals a day.
- 2.**  
Combine knowledge of the basic four food groups, with realistic knowledge of your students' habits, tastes, and preferences, to achieve good nutrition.
- 3.**  
Any eating pattern is a good one if it allows for a good assortment of foods. Use the basic four food groups as a guide for food selection.
- 4.**  
Menus can be varied from meal to meal, from day to day, from season to season.
- 5.**  
The Type A pattern is the meal pattern used in the National School Lunch Program as a basis for selecting kinds and quantities of foods.
- 6.**  
The school breakfast pattern is the meal pattern used in the National School Breakfast Program as a basis for selecting kinds and quantities of food.

## **Some Useful Words**

### **Standard Eating Pattern**

"Three meals a day" has generally been thought of as the standard, normal, or typical pattern of eating.

### **Breakfast**

The first meal of the day which "breaks-the-fast" that results from going without food during sleep. The meal plan developed for the School Breakfast Program is also a good plan to follow at home.

### **Lunch**

Usually the second meal of the day, which many people eat away from home at school or office. The Type A pattern developed for the National School Lunch Program provides a guide for planning lunches that will furnish at least one-third of the RDA for children aged 10 to 12. It is a good plan to follow at home.

### **Dinner**

Generally, the last formal meal of the day when many people try to complete their intake of necessary nutrients.

### **Snacks**

For many Americans this has become the type of food consumed throughout the entire day—a gulp here, a munch there. Its nutritional contribution is as important as that from regular meals.

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)



## LOOK-AHEAD to Program 6 "Preparing Meals: The Last Step"

- ☐ What precautions does your kitchen staff take to keep the nutrients in fresh foods?
  - In preparing meats and meat alternates?
  - In preparing fresh salads?
  - In cooking vegetables?
  - In cooking nutritious breads and cereals?
  - In serving milk and milk products?
- ☐ Are you acquainted with the basic program aids from the U.S. Department of Agriculture?
  - *A Menu Planning Guide for Type A School Lunches* (PA-719)
  - *Quantity Recipes for Type A School Lunches* (PA-631)
  - *Food Buying Guide for Type A School Lunches* (PA-270)
- ☐ Have you used textured plant protein products, or protein fortified, enriched macaroni-type products?
- ☐ Do you purchase enriched breads and cereals?
- ☐ Do you prepare some foods a day ahead of cooking and serving?
- ☐ What do you do with vegetable cooking liquid?
- ☐ Do your lunches always meet Type A requirements?
- ☐ Do you make a conscious effort to follow sanitation and food safety rules?

Before you watch the next program, look at the study guide materials for that program:  
(1) the content of the study guide chapter, (2) the basic points to remember, and (3) the list of useful words.



# 6

## PREPARING MEALS: THE LAST STEP

**The most nutritious menu plan and the highest quality foods are only part of serving nutritionally adequate, student-satisfying meals. How the food is prepared, cooked, and stored is equally important. It's up to you to make sure that everything nature puts into food makes it all the way to the growing bodies you're taking care of and doesn't disappear in the kitchen.**

**Does this sound like a difficult task? Help is available. The art of cooking has developed into a precise science with some basic principles to apply whenever you handle food in the school kitchen. The U.S. Department of Agriculture has program aids for planning, preparing, and serving Type A lunches.**

**Food handling is an important part of the whole subject of nutrition. It really is the last step.**

Farmers produce and send to market foodstuffs full of the nutrients everyone needs. Food distributors move the food through the marketplace as rapidly as possible to preserve its freshness and high quality. Food processors watch very carefully to make sure few, if any, nutrients are lost. If they are, the nutrients are often put back by enrichment or fortification.

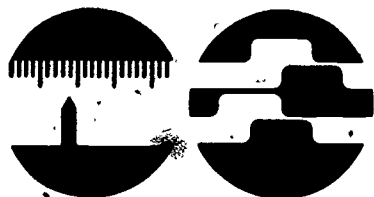
By the time the food reaches your kitchen, some nutrients have already been lost and more will be lost as the food is prepared, served, and stored. There is the obvious physical loss of nutrients when edible parts, like the outer leaves of plants or the fat of meat, are removed and discarded. There is also a chemical loss of nutrients following changes in the structure of plant or animal tissue due to temperature, humidity, length of storage period, method of handling, method of preparation, or exposure to light and water. The importance of any loss depends partly on its extent and partly on the value of the food as a source of the nutrient in question.

Losses can be minimized when proper techniques are followed in preparing appetizing, flavor-packed nutritious lunches.

### **Organize Your Food Preparation**

The goal of every school program is to serve nutritionally adequate, attractive, and moderately priced meals. To accomplish this, it's most important to be well organized before beginning any actual food preparation. Organization of work is essential in quantity food preparation if you wish to retain maximum nutritive value and provide quality food to the students. This means lunches must be ready on time and foods must move to the serving counter at a steady rate. A food preparation schedule is needed to spell out everything that needs to be done, when, and by whom.

A major part of this overall schedule is menu planning. To plan meals you must know what the body needs for nutrients and energy (an understanding of a balanced diet, the basic four food groups, and the Type A meal pattern), how to plan meals which meet Type A requirements, how much food to buy, and how to prepare that food to preserve the most nutrients. Remember, it's the actual food that is eaten which builds and maintains health. Much of this information on menu planning was covered in previous "Food for Youth" programs. Now let's have a closer look at the actual food preparation.



### **Use USDA Food Preparation Aids**

Three basic program aids from the U.S. Department of Agriculture, when used carefully, will help insure nutritionally adequate and economical meals. They include:

**A Menu Planning Guide for Type A School Lunches (PA-719)**, which will help you understand the relationship of the Type A lunch requirements to the dietary needs of boys and girls, and help you plan menus to meet these requirements.

**Quantity Recipes for Type A School Lunches (PA-631)**, a card file of quantity recipes suitable for the Type A menu pattern. All the recipes are standardized to result in a product with a consistent nutritive value every time the recipe is prepared according to directions. The recipes provide lots of helpful information including:

- The weights and measures of all ingredients.
- The best and easiest way of combining the ingredients.
- The ideas for recipe variations and menu suggestions.
- The most appropriate cooking utensils to use.
- The best temperature and length of time to cook the product.
- The most appropriate size and number of servings.

**Food Buying Guide for Type A School Lunches (PA-270)**, which provides information for planning and calculating quantities of food to be purchased and used by schools serving Type A lunches.

With these basic program aids at hand, make a work plan. This will help get the job done in the best way, in the shortest time, with the least effort, and as safely as possible. Your food preparation plan should spell out everything that needs to be done, when to do it, and who will do it. Once utensils, tools, and ingredients are assembled as called for, actual food preparation can begin.

### **Practice Good Food Preparation Techniques**

Cooking is a refinement that presents many advantages, and some hazards, in keeping the nutritional values in foods. Cooking improves the palatability of some foods, improves the digestibility of foods, and sometimes is a safeguard against disease-producing organisms. Cooking speeds the loss of some nutrients and concentrates the loss of others, mainly by removing moisture and fat. Foods served raw, such as carrots and lettuce, are also subject to perils during preparation.

Good preparation techniques for cooking foods and serving foods raw can contribute to the nutritional adequacy of the school meal and accept-

ability of foods by students and teachers.

### **Preparing Meat and Meat Alternates.**

Vitamin losses in meat are related to cooking conditions. To maintain tenderness and juiciness as well as nutrition, cook meat at a moderate temperature for as short a time as needed to bring it to its recommended internal temperature. Heat destroys some of the B vitamins, especially thiamin, but, fortunately, the protein value is not lost by cooking. Prolonged exposure to high heat can make meat tough, rubbery, and dry. Because meats shrink in weight or volume as they cook, a serving portion is weighed *after* cooking, not before.

Much of the total loss is water, which either evaporates or goes into the drippings. That water carries with it some of the B vitamins and minerals which are water soluble, so it's a good idea to treat meat juices with the same respect as water from cooked vegetables. Drippings from cooking, juices released when the meat is sliced and even the drippings from thawed frozen meats, can be added to soups, sauces, and gravies. French chefs call these drippings "Chef's Gold." You save many of those water soluble nutrients, while at the same time adding delicious, subtle flavor variety to meals.

Meats, fish, and poultry should be cooked at staggered times so they can be served hot from the oven all the way through the serving period. The food will be at its merchandisable best.

To avoid spoilage and food poisoning, frozen meat, fish, and poultry should be kept frozen right up to the time when thawing should begin. This time should be noted on the food production schedule. Directions for storing, thawing, and cooking meat, fish, and poultry appear in your USDA recipe card file. Directions for storing, preparing, and using shell, frozen, and dried eggs appear in the card file too.

**Meat alternate products**—The meat and meat alternate component of the lunch is generally the most expensive menu item in the lunch. This is especially true if you serve a 2-ounce serving of meat, poultry, or fish. If you combine less expensive items with the more costly meat/meat alternates, economical lunches can be planned and served. Additionally, less expensive new foods may be used to lower the cost. In 1971, USDA approved two additional meat alternates to be used in combination with meats, textured plant protein products and protein-fortified, enriched macaroni-type products.

**Textured plant protein products** are derived from vegetable sources, often soybeans, and may be fortified with vitamins and minerals. As you know from the lesson on the six classes of nutrients, high quality vegetable protein combined with animal protein is as nutritious as straight animal protein alone. In preparing school lunches, you can substitute hydrated textured plant protein for up to 30% of the meat, fish, or poultry in a recipe. But note that textured plant protein cannot be used as a substitute for other meat alternate items (beans or peanut butter) in the Type A lunch.

**Protein-fortified, enriched macaroni-type products** are made from soybeans also.

When prepared and served in combination with meat, poultry, fish, or cheese, they can supply half the meat requirement of the Type A meal. In other words, instead of serving 2 ounces of meat, you can serve 1 ounce of meat and 1 ounce of high protein macaroni product and meet the requirement at lower cost. One ounce of the dry product cooks to between  $\frac{1}{2}$  and  $\frac{3}{4}$  cup.

The way you cook that macaroni product, however, has a lot to do with how nutritious it actually is when eaten and how the children are going to like it. It may be a wonderful product to begin with, but it won't stay wonderful if you leave it boiling on the back burner for three-quarters of an hour.

#### **Preparing Vegetables and Fruits.**

To help assure that all your Type A lunches meet the nutritional goal, it is recommended that lunches include a vitamin A vegetable or fruit at least twice a week and a vitamin C vegetable or fruit several times a week. In addition to nutrients, vegetables provide a variety of colors, textures, and flavors to the lunch if they are properly prepared, cooked, and served.

Serve vegetables raw or cooked. Vegetables can be enhanced by adding herbs, sauces, spices, and garnishes.

Vegetables almost always need a little trimming to remove damaged leaves, bruised spots, infected portions, and other inedible material. Discarding any amount of food, however, reduces the nutrients originally present.

Different parts of the plant differ in nutrient content. Remove only the bad leaves. The blade is rich in many nutrients. The outer leaves are coarser and contain higher concentrations of vitamins and minerals than the more tender leaves and buds they protect. It's important to handle them carefully to keep bruising to a minimum. Every bruise damages plant tissues, exposing more of the tissue to the air and increasing nutrient loss. To help minimize bruising, tear greens into pieces and use a sharp knife with most other vegetables.

The three R's of cooking vegetables to conserve nutrients are: Reduce the amount of water used, Reduce the length of cooking period, Reduce the amount of surface area exposed. Vitamin C, for example, requires tender, loving care if it is to be preserved. It dissolves in water. It becomes weakened by exposure to air. It can be destroyed by heat. If you chop up cabbage for a slaw, but leave it standing on the counter for an hour before serving it, much of the original vitamin C is destroyed by the air. Similarly, there's a great deal more vitamin C in a freshly-cut cabbage than there is in the same amount of cabbage boiled for 2 hours with corned beef. Heat hastens the destruction of vitamin C.

**The volume of water used is most important.** Ascorbic acid, all the B vitamins, and some of the mineral compounds are water soluble. Avoid heating vegetables in more than a minimum of water or soaking for a prolonged period. It's a good nutritional trick to get in the habit of keeping the cooking water from vegetables and adding it to soups, sauces, and gravies. That way your students are getting the benefit of the vitamins and minerals that might otherwise be poured down the drain.

**The longer you cook a food, the more nutrients you destroy in it.** By starting a vegetable in cold water, you lose many nutrients before the water begins to boil. You can shorten this critical period and the total cooking time if the water is boiling when the vegetable is added. Then, cook only until the vegetable is tender and heated through.

**The more of a vegetable that gets exposed to the air, the greater the vitamin loss is going to be.** Cutting a potato in half, for example, exposes the surfaces to the air and some nutrient loss occurs. Cutting it into slices multiplies the exposed surfaces, making greater loss likely. Dicing or mashing the potato exposes even more surface to the air and there are additional

nutrient losses. On the other hand, cut pieces cook more quickly than if left whole, so the adverse effects of extra surface exposure may be offset, at least partly, by the shortened cooking period. A rule of thumb to follow is: Cut up just the amount of vegetables needed and only as far in advance of cooking and eating as necessary.

In Program 6 you see that steaming under pressure is a quick and satisfactory method of vegetable cookery. The least amount of water comes into contact with the vegetables. They cook fast. They can be cooked in small batches, at staggered times, so they can be served hot all through lunch time. This system will greatly enhance the eye-appeal of vegetables, as well as their tastiness and nutritional goodness.

See the timetables for boiling and steaming vegetables in your recipe card file. Remember, cooked vegetables lose more nutrients the longer they are kept. Reheating cooked vegetables also takes its toll of nutrients. So plan carefully to minimize leftovers.

Even under ideal storage conditions of the right temperature and humidity, most fresh vegetables retain top quality only for a few days. Most fresh green vegetables keep well and stay crisp if put in covered containers or plastic bags and stored in the refrigerator. If you wash lettuce, spinach, and other leafy vegetables before storing, drain thoroughly, because too much moisture can hasten decay.

Program 6 also shows that salad making requires careful scheduling of work so the ingredients will be the best quality—crisp, colorful, and good tasting. The simple rules are:

- Store ingredients carefully.
- Wash and prepare ingredients ahead of time. (Vegetables like onions, celery, and carrots can be cleaned the day before and refrigerated until needed.)
- Chill ingredients thoroughly.
- Combine ingredients at the last minute.

Raw salads provide a variety of color, flavor, texture, and shape to your school meals as well as valuable nutrients. There is no end to the number and kind of foods you can combine as salad ingredients. See your recipe card file for more suggestions.

### Meeting the Bread Requirement.

Protein, iron, and the B vitamins, notably thiamin and niacin, are among the chief contributions of bread to the diet.

When processing the grains used to make bread, some nutrients are lost. The kind and extent of processing determines the amount of loss. Bread that is labeled "enriched" means that some of the nutrients have been put back in.

The Type A lunch pattern calls for one slice of whole-grain or enriched bread, or a serving of "other" bread-type items.

Among the possible bread-type foods to serve in place of whole-grain or enriched bread are bagels, biscuits, Boston brown bread, cornbread, muffins, and stuffing. You can also serve bread sticks, melba toast, crackers, taco shells, dumplings, hush puppies, pizza crust, tortillas, and waffles. A USDA Instruction lists these "other" bread-type items which may be credited toward meeting the bread requirement of the meal pattern. The list presents equivalent amounts in terms of the requirement for 10-12-year-old children. Like other foods, serving sizes should be increased for older students and decreased for the younger children.

### Serving Milk

Milk and products made from milk provide calcium, riboflavin, and protein to the meal. The Type A milk requirement has been broadened so you can meet the food preferences of a larger number of your students. Milk is defined as fluid types of unflavored whole milk or lowfat milk or skim or cultured buttermilk which meet State and local standards for such types of milk and flavored milk made from milks which meet these standards.

### Serving Butter

Finish the pattern with butter or fortified margarine. It may be used as a spread on bread, as a seasoning on food, or in the preparation of other foods in the lunch.

### Check for Food Safety

Improper refrigeration, improper cooking, and improper handling can trigger unseen harmful bacteria in food and cause illness. Food safety must be an ever-present part of every step of food preparation.

Just as it is of utmost importance that the Nation's children be fed nutritious, body-building meals, it is equally important that the meals be free from harmful substances; whether visible or invisible, that may cause illness. Nutrition and sanitation must go hand in hand in any good child nutrition program. As a school food service manager, you are responsible for



the health and well-being of the children eating meals in your school's cafeteria.

Follow these five basic steps for safe food service:

- Clean Hands
- Clean Service
- Clean Food
- Right Temperature
- Healthy Workers

#### **Clean Hands**

Be sure that all of the employees handling food have clean hands.

- Provide a wash basin, warm water, soap, and towels in a convenient location.
- Encourage employees to wash hands with soap and water on reporting to work, whenever hands are soiled, after use of handkerchief, and, above all, after each visit to the restroom.
- Make sure the hand washing area is cleaned frequently. Occasionally check to see that towels and soap are available.

#### **Clean Service**

Be sure the work area where you prepare and serve your food is clean.

- At the beginning, and periodically throughout the school year, clean the entire work area to remove dust, dirt, and grime from floors, walls, windows, and ceilings.
- Wash table tops and other work surfaces before and after use.
- Defrost and clean refrigerators at regular intervals.

- Keep your kitchen free of flies, roaches, rats, and mice. Do not permit household pets in the community building kitchen or dining room.
- Dispose of garbage and other wastes after every meal. Keep waste receptacles clean.
- Encourage employees to use plastic gloves when handling foods by hand.

#### **Clean Food**

Food from unsafe sources and food improperly handled or prepared may be a health hazard.

- Select clean wholesome food from sources approved or considered satisfactory by the health authority.
- Wash fresh fruits and vegetables before using.
- Store foods in areas that are cleaned periodically.
- Protect food from contamination when cooking by using clean equipment and utensils.

#### **Right Temperature**

Be sure that in the preparation of foods, in holding food for service, and in storing foods you maintain temperatures that will not cause foods to become contaminated and cause illness.

- Keep hot food hot (above 140°F) and cold foods cold (below 40°F).
- Cook food to internal temperatures of 165° F to 170° F, and serve immediately or refrigerate in shallow containers. The center of the food mass should reach 45° F within 4 hours.

- Maintain all potentially hazardous food at safe temperatures (45° F or below, or 140° F or above) except during necessary periods of preparation and service.

- Store frozen foods in freezer storage rooms with temperatures of 0° F.

- Keep refrigerated food items under various temperatures:

- Dairy products—32° to 45° F
- Meat and poultry—32° to 50° F
- Fish—32° to 50° F
- Fruits and vegetables—32° to 50° F

#### **Healthy Workers**

Food workers with colds and other diseases may spread bacteria and pass diseases on to others. Germs from infected cuts and sores may cause food poisoning. Personal hygiene and worker's personal attire are also important in promoting sanitary work habits.

- Post a personal hygiene checklist where it can be readily seen by all personnel.
- Be sure that all school lunch workers meet the health standards set up by local and State health authorities.
- Be sure persons with infected cuts or sores, colds, or other diseases stay away from work. Stress the importance of using sick leave when it is necessary.

- Encourage workers to wear hair nets and clean uniforms and shoes.
- Discourage the use of excessive makeup and jewelry.

### Find A Better Way

Looking for a way to economize time and energy without adversely affecting the quality of the food you serve? Studies show that 55 percent of productive labor time is lost through wasted motions in food service operations and this time is costly. You can increase the energy and productivity of your personnel through the use of basic techniques of work simplification.

Work simplification is the process of making a job easier through the proper use of the human body, the arrangement of the work area, and the design of the tools and equipment. It is the organized use of common sense to find easier and better ways of doing work. Work simplification involves creative thinking, constant searching for a better way to do the job, and planning.

Work simplification serves as a tool of good management by:

- Making work easier, quicker, and more interesting.
- Giving the employee more confidence and increasing job satisfaction.
- Improving quality of service.
- Eliminating unnecessary work.
- Increasing productivity.
- Stretching the labor dollar.

There are many ways to do a job, but the simplest, quickest, and the safest way is the best!

### Steps in Work Simplification

1. Select the job to be improved. Ask yourself which job needs improving most, involves the most time, and is likely to yield the greatest benefits when simplified. Look for bottlenecks. Look for jobs that seem to require too much time or energy.
2. Make a detailed breakdown of the job as it is presently being done. List the order in which steps are performed. Include materials, equipment, time, and personnel used in completing the job.
3. Ask questions and challenge each operation. For each step ask: Why is it done? Is it necessary? Can it be combined with another step? Are the steps in logical sequence? Is the job done at the correct time? Where is it done? Could it be more efficiently performed elsewhere? At some other time? By some other person? Is equipment adequate? After this careful study of every aspect of the job, you will see where the inefficiencies and productive portions of the job stand out.
4. Work out a better method of doing the job. Eliminate unnecessary steps; combine steps; rearrange materials; standardize procedures.

5. Apply the new method. If it is more efficient, use it until a better way is developed.
6. Remember that all employees whose work is affected by the new method should be thoroughly trained. The new way of doing a job should be easier and more productive than the old so that employees readily accept it. Employees are more likely to cooperate and work to improve their jobs when they are allowed to participate in the program and share in its benefits.

### Work Simplification Through Motion Economy

By becoming "motion conscious" you can develop work simplification routines which will help increase work efficiency and reduce fatigue.

Work simplification means:

1. Making rhythmic and smoothly flowing motions. An overlapping figure eight action or a circular motion requires less energy than short back and forth motions.
2. Making both hands productive at the same time. For example, in preparing sandwiches, pick up and position two pieces of bread at the same time.
3. Making hand and body motions few, short, and simple. Each motion should use the least possible time and energy. Don't use an arm motion if a hand motion will accomplish the task.

4. Maintaining comfortable work positions and conditions.
5. Locating all supplies and equipment in the area where they are to be used.
6. Using the best available equipment for the job.

#### **Fifteen Ways To Save Time**

1. Use equipment on wheels, such as carts and wheel tables, and trays to make transport easier.
2. Arrange dishes in stacks of 20 so that a count can be quickly and easily determined.
3. Measure dry ingredients before fats and liquids to avoid unnecessary cleanup of measuring tools.
4. Post and implement a work schedule for all employees (see February 1975 issue of *Type A Topics*).
5. Use scales to weigh instead of measuring whenever possible. For example, weigh batter in pans to assure even volume.
6. Always use the correct tools. For example, measure in large containers (1 quart instead of 4 cups).
7. Use cooking containers for serving whenever possible. The food will stay warm for a longer period and will look more attractive.
8. Grind several foods in succession when possible to save time in washing grinder. After using electric grinder attachment, put several slices of bread through the grinder to aid in cleaning out fat and grease.
9. Use a dry vegetable brush for removing cheese and lemon and orange rinds from a hand grater before washing.
10. Use vegetable wedges or whole vegetables when practical.
11. Avoid extra handling of dough when practical. Make drop cookies rather than rolled ones. Roll biscuit dough directly onto sheet pans and cut into squares rather than rolling and cutting.
12. Take advantage of gravity whenever possible. With a single sweeping motion, scrape chopped foods across cutting table and allow to fall into receiving pan below table.
13. Chop foods such as celery, carrots, or string beans in bunches, rather than singly.
14. Use a portion scoop for filling muffin tins, measuring sandwich fillings, hamburger patties, and cookie dough.
15. Keep sandwiches from drying out prior to serving by covering with wax paper topped with a damp, clean towel.

#### **Basic Points to Remember**

1. How foods are prepared, cooked, and stored has an important influence on their nutritive value, flavor, and appearance.
2. Use of textured plant protein products is a way of adding good quality protein to meals at lower than conventional cost.
3. Nutrients vary greatly in their stability. Some of them are lost from food as a result of poor food handling. Avoid prolonged soaking in water. Avoid unnecessary exposure to air. Avoid exposure to too-high heat, and to heat for too long a time.
4. Be sure and wash your hands with soap and warm water before you handle any foods. Wear plastic gloves whenever possible.
5. Proper food preparation can contribute to the nutritional adequacy of the lunch and acceptability of foods by pupils and teachers.
6. Work simplification will help you economize without adversely affecting the quality of the food served.



## **Some Useful Words**

### **Food Handling**

Everything that happens to food while it is being grown, processed, stored, and prepared for eating. The way food is handled influences the amount of nutrients in food, its safety, appearance, and taste.

### **Textured Plant Protein Product**

A product that is rich in vegetable protein, derived chiefly from soybeans. It's usually enriched and fortified with vitamins and minerals, and is a way of adding good quality protein to meals at lower than conventional cost.

### **Protein-Fortified Enriched Macaroni-Type Products**

A macaroni-shaped product made with soybean protein that can be prepared and served in combination with meat, poultry, fish, or cheese.

### **Work Simplification**

The process of making a job easier. It is the organized use of common sense to find easier and better ways of doing work.

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

## LOOK AHEAD to Program 7 "Places We Eat In"

- ☐ What does eating mean to you and your family?
- ☐ How would you describe your home environment at meal-time?
- ☐ What would you say eating means to most of the students served by your cafeteria?
- ☐ How would you describe your lunchroom environment?
- ☐ Do you and family members have an opportunity to discuss your needs, desires, and expectations very often?
- ☐ What are some ways in which the meal environment in your home could be improved?
- ☐ Can you suggest ways in which the meal environment in your school can be improved?
- ☐ Can you, as a member of the school food service team, initiate any of these improvements? If you feel your voice would be heard, how would you approach the matter?
- ☐ What resources would you need to bring about an improved environment in the school cafeteria?
- ☐ How do you feel the attitudes of school food service personnel influence the eating environment?
- ☐ Is there room for improving the attitudes of cafeteria workers in your school?

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter, and (2) the basic points to remember.

# 7

## PLACES WE EAT IN

**What is your meal environment like? Is your lunchroom a pleasant place where students can enjoy a good meal as well as a refreshing break in the classroom grind? If your lunch situation is not this pleasant, what can you do to help improve it?**

So far in this course we've dealt with nutrients, foods, and body cells and how they all interact to produce a healthy person. Now we must deal with environment.

### **Meal Environment Is Important**

The first thing to remember is this: The places we eat in are just as important as the foods we eat. Meal environment is often shoved to the back burner as one of the "nice but unessential extras" that school administrators, teachers, and school food service personnel have to worry about. Pleasant surroundings during the course of a meal are not just an aesthetic consideration, they're a health consideration, too. The way food is presented to a child, the atmosphere in which he is expected to consume that food, and the attitudes of the people associated with the food combine to influence whether the child eats the food and whether he derives any psychological satisfaction from eating it.

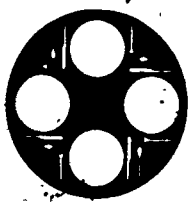
Remember in Program 1 we spoke of the reasons why people eat the way they do? One of those reasons was that we eat for emotional security. People use food to satisfy a whole host of needs besides hunger and the physiological needs of the body. A pleasant meal environment is part of the psychological aspect of eating.

There are also other advantages that a pleasant environment can have. Learning is a difficult activity and those students who are in a classroom for hours at a time are working hard. When lunchtime rolls around, a youngster needs the special benefits that a relaxing mealtime atmosphere can offer. He needs not only nutritious food to meet his body's needs, he also needs the pleasant sight and sound and smell sensations, the friendly personal contact, and the chance for conversation that a pleasant cafeteria atmosphere can provide.

Learn to view the school cafeteria situation from the students' point of view. Your service procedures may be the height of slick efficiency on your side of the tray rail, but how do they look to the kids? Ask yourself: How would I like to have to eat in this atmosphere 5 days a week? What would it take to please me? Since kids want a place that's fun, a place that's friendly, a place that makes them feel good, how can I help them get what they want? Have I asked them?

### **You Can Make A Difference**

As a member of the food service staff, you can make a difference not only in the meal environment itself, but in the attitudes of the school administration to the problem. The



school food service worker can help make the school cafeteria a pleasant atmosphere for students without taping in a supply of tablecloths or rigging up a system to pipe in music! How do you feel about your work? Do you like it? Do you like the people you work with? How do you feel about the school you work in, and the school administration? Do you like the lunch you're serving? All these feelings come across to the students and influence the lunch atmosphere.

Make all your face-to-face contacts with your youngsters pleasant ones. No matter how brief your contact with any one child, even if it's limited to the few seconds it takes to hand him a dish of cottage cheese, smile! Insignificant? Not if yours is the only smile that child sees beamed at him most of the day. Not if it's the only humanizing touch he experiences during an otherwise rushed and hectic lunch period.

Children, and small children in particular, are used to associating food with people. The food they're given at home isn't handed to them by unsmiling strangers. They probably wouldn't eat it if it were. So don't expect children to view you as a "School Food Service Worker." To them, you're people! They'll feel better about the food you serve if you're nice people. A comment from you about a new food being served or about a portion size, or a compliment on

something the student's wearing, or a cheerful "Enjoy your lunch!" can go a long way toward helping create a pleasant atmosphere. Don't be afraid to let the real you come through!

### **The Food Has a Major Effect**

In any eating situation, both the food and how it is served have a major effect on the overall environment. You know it's good for the students, but does it look good to them? Would a bit of brightly colored fruit perk up that cottage cheese? Would a sprig of green parsley give a visual boost to the hash? Scientists may not be able to prove it in their laboratories, but everyone knows it's true that food that looks good tastes better. Do you make an effort to attractively display the food for the day rather than just dishing it out? Do you serve hot foods hot and cold foods cold, rather than letting everything come to room temperature? Do you take care to balance strong flavors and smells in foods with more bland foods in the same meal?

### **The Cafeteria Holds Many Possibilities**

An important environmental aspect that you may or may not have control over is the actual setting in which the students eat. You may have a bright, new cafeteria with colorful, small tables and several serving lines. Or, you may have a gymnasium that becomes a makeshift cafeteria at noon, with the kitchen tucked in the corner, and one serving line for everyone. These are two extremes, but even the descriptions produce different feelings as they're read, so imagine how different the students would feel in each situation! Probably you're somewhere in between, but your cafeteria may still have some of the more common problems.

Are serving lines too long, or do they move too slowly? Are there too few food service lines, so that kids either make a mad scramble to get there first or get left to wait until half the lunch period is over before being served? Perhaps you can convince the administrator that the lunch hour needs to be a little longer, or that the classes could be released at 5-minute intervals instead of all at once. Perhaps the very young children could be served their lunch in their classroom.

Maybe you have a cafeteria that is just one huge hall with rows of long tables, making the whole situation look very institutional and discouraging the formation of small, natural conversation groups. The result is probably a very noisy, chaotic eating situation. If you get the chance you may try to encourage the administration to buy smaller tables. If that opportunity never comes, why not try using student artwork hung from the ceiling as a fake room divider? The art teacher and the students would probably both be willing to cooperate in any effort to improve the cafeteria environment.

The next time new trays are purchased, select brightly colored ones instead of beige.

What about smell? Remember, you want to sense the cafeteria from the point of view of the children you're feeding. The odor of ammonia may suggest cleanliness to you. Is that what it suggests to the kids?

What about sound? Is it absolutely silent? (Try to eat a meal with some friends without any of you saying a single word, and get to know how unnatural it is.) Is it pandemonium? Or is there a reasonable hum of many different private conversations going on? Most teenagers can tolerate quite loud volume, most smaller children can't stand any real noise.

### **You Can Affect Change**

There are all sorts of environment-improving activities that you can initiate, and probably count on ample support and encouragement from both students and teachers. You may not succeed in getting your ideas translated into action, but that shouldn't deter you. As a food service professional, it's your duty to do what you can to affect the upgrading of all areas of the school food service program. If nothing else, you can always go back to the one guaranteed approach to humanizing the school lunch program: a smile!

Maybe it's the little things that pay off biggest in the end. And if your smile makes one child enjoy his school lunch sufficiently so that he eats all of it, wouldn't it have been worthwhile? The atmosphere in which food is eaten does affect a child's health in the long run. When there's too much noise and rush and distraction, when a child feels as if he is a tiny item lost in a huge institution, he's usually too tense and anxious to eat. Under those circumstances, the most nutritious food in the world can't do him any good. Your personal contribution in making school lunch less like a mass feeding production and more like a pleasant individual experience is probably the single greatest contribution to good nutrition that you can make.

### **Basic Points to Remember**

1. Where we eat has almost as much to do with how well we enjoy our meals as how good the food tastes.
2. Youngsters need and deserve a pleasant atmosphere in which to eat.
3. The school food service worker can help make the school cafeteria a pleasant atmosphere for students in two important ways.

First you can make all your face-to-face contacts with your youngsters pleasant ones.

Second, you can learn to view the school cafeteria situation from the students' point of view.

4. As a food service professional, it's your duty to do what you can to affect the upgrading of all areas of the school food service program.

## LOOK AHEAD to Program 8 "Classroom and Cafeteria"

- ☐ As a part of the school health team, how can you bring about nutritional awareness among other professionals in your school?
- ☐ How can you help them better understand the learning opportunities that exist in the school feeding program?
- ☐ In your cafeteria do you have an opportunity to talk with students? And receive their comments and suggestions on improving the meal programs?
- ☐ What are ways in which your lunchroom can share nutrition education activities with classrooms in your school?
- ☐ What have you done to help the students in your lunchroom better understand the Type A lunch pattern?
- ☐ How do you explain to friends the importance of nutrition education in the lunchroom?
- ☐ Do you ever use the four food groups guide as a tool in teaching your staff about nutrition? Do they understand the relationship between the food groups and the Type A pattern?
- ☐ What value do you see in having students visit your cafeteria kitchen?
- ☐ How would you answer the person who says the schoolroom is for learning and the cafeteria for eating?

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

Before you watch the next program, look at the study guide materials for that program.

# 8

## CLASSROOM AND CAFETERIA

**Just what is nutrition education and whose responsibility is it? Certainly education in the classroom is the responsibility of the classroom teacher, but there are other kinds of education and other places for it.**

**Have you ever considered your lunchroom as a laboratory for learning? Have you ever considered the school lunch program as a way of teaching nutrition? Give some thought to both possibilities and see if you can come up with some ideas of what can be done in your circumstance.**

### **More Than Nutritious Meals**

The school that does no more than provide nutritious meals for its students is not really fulfilling all of its responsibility to them. While helping to meet the daily nutritional needs of students is, of course, the primary objective of any food program in the schools, it is still only part of what the school can do in the area of nutrition.

A school's total program can be considered a success only when youngsters are provided with "nutritional know-how"—an understanding of such basics as the four food groups, the six classes of nutrients, and what calories are and are not, and experience in such matters as choosing a well-balanced, appealing meal from the good food offered on a day-to-day basis. The whole point of education is to prepare children to function effectively and intelligently as adults. Giving them good meals may meet here-and-now nutritional needs, but only nutrition education can bring on good practice in nutrition on a long-range basis.

Nutrition education is, ideally, a long-term, ongoing process that involves every member of the education team, including the food service worker. Don't let the word education mislead you into thinking that the principles of good nutrition can only be learned from a book or in a classroom setting. Learning takes place all the time, in all sorts of situations, for all of us. When it comes to learning about food, the school cafeteria is often the best learning environment there is.

### **Three Ways to Learn Nutrition**

Essentially, there are three ways in which students can learn the principles of good nutrition in school. A combination of three approaches is best, but any approach, if it leads to even a small amount of increased knowledge, is better than none. Let's consider the three in turn—and give some thought to how the school food service worker can be helpful.

First, there is formal teaching in which classroom time is devoted specifically to lessons in nutrition. This may range from very simple lessons with little children to quite sophisticated units of study in the upper grades.





To get nutrition education to the classroom will require special effort on your part. One of the best ways for you to help is to serve as a resource person to the other teachers. Few teachers have a background or education of nutrition, and though they may feel the need to teach it, they may not feel competent to do so.

Express your willingness to visit the classroom and answer questions about the school lunch program—the food you serve, why you serve it, why it's important for students to eat well, how what the children have been learning relates to the work and plans of the school food service and staff. You might want to suggest lessons on nutrition that teachers could include in their planning.

If you find that some teachers are already teaching nutrition, you should investigate just what is being taught in such courses with an eye toward planning and serving specific meals to coincide with what is being taught. For example, if you learn that the first-graders are going to be having a lesson on "Our Friend, the Carrot" next Monday, you might make sure that carrots are on next Monday's menu.

The second is an indirect approach to teaching nutrition. If the teachers in your school don't wish to teach nutrition per se, perhaps you could persuade them to relate the subject of nutrition to other subjects being taught. For example, in a social studies class studying a foreign country, the teacher may introduce some nutritional concepts while discussing that country's national dishes. A French class learning to read a menu written in French can get instructions in nutrition as a bonus. So may second-graders studying how farmers raise different crops or a home economics class studying how to plan a family budget. You can reinforce what you know is being taught in class with your conversation with the children in the cafeteria. When that first-grade lesson on "Our Friend, the Carrot" has been taught, try asking one of the children: "What good are carrots anyway?" You'll probably get a chorus of knowledgeable answers!

The third way of getting nutrition information to the students is to actually involve them in the school food service program. You can stimulate the students' interest in nutrition by including them in various phases of your meal operation.

For elementary students you might hold tasting parties in cooperation with the teacher. Young children need encouragement to try new foods, and tasting parties give them a perfect opportunity. There they can feel and smell unfamiliar foods in both the raw and cooked state. They can also taste various foods in small quantities—enough to give them an idea of how the food tastes, but not so much that they'll have to eat a lot of a food they haven't yet learned to like. Learning to like foods is a good first step toward good nutrition.

For older students, tasting parties might still be a good idea. But another method of involving these students is the student advisory council. These councils have been established in several schools throughout the country and are having considerable success, both as vehicles for nutrition education of the students and as aids to the school food service personnel in planning Type A lunches that the student will eat. If your school doesn't have a student advisory council, perhaps you could encourage the establishment of one. It would involve some extra effort on your part, but in the long run it would make your job easier, and it might help the students learn a little more about the foods they eat. Below are additional activities that you might like to try.

- Conducting guided tours of the kitchen and service facilities, explaining various aspects of the National School Lunch Program and allowing the students to see actual food handling and to ask questions as they go.
- Holding orientation sessions for those students using the cafeteria for the first time.
- Introducing new foods—or foods prepared in a new or different way—by handing out samples at the head of the lunch line.
- Celebrating United Nations Week by serving a menu of foreign dishes and handing out an information piece that shows how the menu meets Type A requirements.
- Suggesting that classes studying specific foreign countries “sponsor” a foreign meal in the cafeteria by decorating it appropriately and serving as host and hostess.
- Recommending that classes concluding units on nutrition write menus for school lunches.
- Staging a school-wide poster contest to promote the Type A Pattern and the National School Lunch Program.

The possibilities for such involvement of students is almost limitless, as are the many ways in which food service personnel can help and support them.

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a “Food for Youth” course, you were instructed where to send the completed quizzes.)

## LOOK AHEAD to Program 9 "It's Not Good For You!"

- ☐ What do you think about the statement that "The way children eat now will affect what happens to them in their adult life"?
- ☐ Do you feel that fat babies and children are likely to grow into fat adults?
- ☐ Have you thought much about causes of obesity or overweight? What are some causes?
- ☐ What does the word "dieting" mean to you? Are many students in your school "dieting"? How does your school meal serve the "dieting" student?
- ☐ How can your school meals and the meal environment help students become more concerned about the importance of a good diet to prepare for their future families?
- ☐ What would you say were the greatest nutrition-related problems of school-aged kids?
- ☐ What is iron deficiency anemia? How does the school meal pattern serve to protect the child against iron deficiency anemia?
- ☐ Where do you go to obtain accurate information about nutrition?

Before you watch the next program, look at the study guide materials for that program: (1) the content of the study guide chapter, and (2) the list of useful words.

# 9

## IT'S NOT GOOD FOR YOU!

Starvation is common in some countries of the world and the health problems found there are often directly related to the shortage of food. Do you realize that there are health problems in 20th century America that are also attributed to poor diet? Scientists are beginning to believe that some of our modern ailments are directly related to poor diet. The next time you want to eat something, ask yourself why you're eating it. What's it going to do for your body, and what's it going to do to your body? Is the food you're about to eat replacing some other food that you should be eating?

In the film you see a girl who has dealt with obesity. What can you do in your lunch program to help others deal with this problem? Could your lunch program use good nutrition as a form of preventive medicine for some of the more common food-related health problems?

There is also a lot of confusion and disagreement about what foods are good for you and about where to go for good information. What can you and your lunch program do to help clear up some of these misunderstandings?

You've heard the saying "You are what you eat." It's true, but it's also true that we are what we don't eat. What we choose not to eat affects us negatively as well as positively. When we eat well, we're not only helping to assure a state of health, we're preventing certain specific health problems. When we eat poorly, our general condition of health goes down and we invite certain specific health problems.

### Diet-Oriented Health Problems

A variety of health problems have been directly associated with the diet. Let's take a look at some of those problems in turn and consider how diet is involved in their cause and cure.

### Obesity

Obesity, and the various health problems associated with it, is one of the major health problems in the United States today. Quite simply, obesity is excessive overweight. Anyone who is more than 20 percent overweight by desirable weight standards is obese. That means that if your desirable weight is 130 pounds, and your weight is 170 pounds, you are not just overweight, you are technically obese.

Obesity results from overeating but, to be more specific, it can result from one or more of three causes:

- A person's activity level is normal, but his calorie intake is high.

- A person's activity level is very low, but his calorie intake is normal.
- A person's activity level is somewhat low, but his calorie intake is somewhat high.

What all three of these "causes" have in common is that the obese individual takes in more calories than he uses up and he does so on a regular basis over a long period of time.

"On a regular basis over a long period of time" means that obese people know when they're gaining weight but choose to ignore the situation. And as a result, they leave themselves wide open for a whole lot of health problems. The most talked about problems are heart diseases.

Obese individuals have a much greater chance of developing some kind of heart disease than an individual of normal weight. There are a number of reasons for this: the heart has to work harder in obese individuals, obesity increases the amount of fats in the blood, and obese individuals have a more difficult time getting enough exercise.

Obesity among young people is especially worrisome. It results from the same imbalance between calorie intake and calorie usage as other obesity, but the psychological reasons that stimulate the overeating may be different. Whatever the cause,

it's a problem that you face every time one of these obese students comes through your cafeteria line. Does your lunch contribute to the problem, does it help it, or doesn't it? What should your lunch program do?

Your cafeteria is not a clinic for nutrition-related health problems. In many cases all you can do is sympathize. In no case should you offer therapeutic help for obese students or students suffering from many other health problems. What you can do is provide encouragement for students to make better food choices.

The girl in the film talks about the embarrassment associated with eating the "diet plate" in school, so perhaps that's not the solution. You might encourage the selection of more slimming foods by making a choice available. Always offer skim milk as well as whole or chocolate milk. Always offer fruit dessert when you offer a cake or cookies. Have a salad available, and if you can, serve a plain meat dish in addition to any meat you serve with a sauce. The key is to make low-calorie foods look and taste as good as other foods you serve, and to make them inconspicuous, so the overweight students won't be embarrassed about choosing them.

## Dental Caries

Another nutrition-related health problem that is common among all age groups is dental caries, or tooth decay. Virtually everyone has cavities and while their exact cause is not fully understood, they are definitely a food-related problem.

When we eat carbohydrate, especially that of the sugar type that is sticky and accumulates on the surface of the tooth, tiny bacteria in the mouth begin to ferment the carbohydrate. The acid produced by this action penetrates tooth enamel and causes tooth decay.

It appears that people who eat more of the sticky, refined kinds of carbohydrate have more tooth decay. And those high-sugar items that tend to stick to the teeth, like caramels, are the chief offenders. So it seems that it's a question of what kind of carbohydrate we eat rather than a question of how much we eat.

Foods that are high in calcium and protein can help form teeth resistant to decay, and celery and fresh apple perform something of a "tooth brushing" function which rids the teeth of some of those clinging bits of carbohydrate. However, the chief nutrient in the fight against tooth decay is one that is scarcely found in food at all: fluoride. Studies which began in areas where water was naturally fluoridated have shown that children drinking fluoridated water since birth experience up to 70% less

decay than those drinking water that has not been fluoridated. Whether a community's water supply is naturally fluoridated or has fluorine added to it, the benefits are the same. In those communities where the water is not fluoridated, a dentist can apply fluoride directly to children's teeth or prescribe fluoride tablets, though neither procedure is as effective or as cheap as fluoridating the community water supply.

Many foods have been tested for fluoride content, and almost all are extremely low. Fish in which the bones are consumed (like sardines) and dry beans are the best food sources of this nutrient, but not even these can supply the amounts of fluoride needed to give teeth the best possible protection.

Giving teeth good protection should be a matter of concern, but we all know that kids won't stop eating sweets, and neither will you! Sweets are a large part of every American's food and it would be foolish to expect everyone to stop eating sweets. The next best thing to try is to get people to eat sweets in moderation (only once or twice during the day) and to practice good dental hygiene.

Sugars have their most damaging effects in the first few minutes after they're eaten. Obviously, if you eat sweets 10

different times during the day you'll have a much greater chance of damaging your teeth than if you eat sweets only once a day. Brushing the teeth after eating, especially after eating sweets, is very beneficial in preventing tooth decay. If brushing is impossible, just rinsing the mouth with water is a lot more helpful than doing nothing at all.

What does all this mean to you in your cafeteria? Again, there is only so much you can do in your cafeteria. You can't prescribe diets nor can you forbid sweets. You'll have a rebellion on your hands if you try.

You might try hanging posters on the walls about dental hygiene, proper food selection, care of teeth after eating and so on. These kinds of materials are generally available from the American Dental Association or other organizations concerned with dental health.

You can avoid serving too many cookies, sirups, jams, pastries, and other confections in your lunches. You can't eliminate them, but try to cut back a little. Try not to serve sweets twice in the same meal, such as sweetpotatoes with marshmallows as a vegetable and chocolate cake with icing for dessert.

Outside the cafeteria, find out if your community has fluoridated water. If not, why not take an active part in informing the community of the tremendous benefits of fluoridation?

### Iron-Deficiency Anemia

A common food-related health problem is iron-deficiency anemia. As with all anemias, iron-deficiency anemia results in a reduced level of hemoglobin in the blood. Blood moving through our body carries oxygen from the lungs to all the tissues, where it is released for use. The oxygen is carried by being attached to hemoglobin. As iron is an essential part of the structure of hemoglobin, an inadequate intake of iron in the diet can lead to a shortage of hemoglobin. This shortage is referred to as iron-deficiency anemia. It was originally thought that only girls and women of menstrual age suffered from lack of hemoglobin. But a recent study found that many adolescent and adult males had low hemoglobin levels, also. The study found that, based on dietary standards, iron intakes were far from satisfactory.

Obviously, the major way of combating this health problem is to consume more of the foods that are good sources of iron. Except for milk and cheese, high protein foods are a concentrated source of iron, with organ meats of all kinds and dry beans and peas heading the list. A  $\frac{3}{4}$  cup serving of dried beans or peas, for example, has as much iron as a 3-ounce serving of lean muscle meat; but a 3-ounce serving of cooked liver has twice as much iron as the same amount of lean cooked beef.



Dark green leafy vegetables; dried fruits; egg yolk; whole grain, restored, and enriched cereals and bread are all good sources of iron.

A recent finding that many Americans are anemic has led to the recommendation that cereal products—flour, cornmeal, corn grits, rice, farina, and macaroni and noodle products—be enriched with additional iron. If and when this is done, the situation should improve considerably, because these are staples of our diets.

What can you do in your lunchroom to help? Well, you can't force the students to eat those iron-rich foods that are so good for them, but maybe you can come in the back door. You can add some liver to the meat everytime you serve a meat loaf or other ground meat dish. You can add fresh spinach to salads instead of using just head lettuce. You can make a point of baking cookies and cakes that contain dried fruits.

Or you can find ways of making high-iron foods more appealing to the students. Try cooking liver several different ways and offering bite-sized samples to students as they come through the line to find out which one they liked best. Find different ways to prepare fresh green leafy vegetables, perhaps in different sauces, and again offer bite-sized samples before serving a meal-size portion.

### Teenage Pregnancy

Any discussion of iron-deficiency anemia automatically leads to discussions of pregnant women because pregnant women need so much more iron than anyone else. A special segment of the population is of particular concern in this respect and that is the pregnant teenage girl. For her, the increased demands of nourishing a fetus come at a time when her own body is most demanding. Usually, one or the other or both suffer from a lack of the essential nutrients needed for health, thereby compromising the growth potential of the mother-to-be and increasing the risks to the baby. Undernourished mothers have a high risk of giving birth to small babies. Undernourished teenage mothers seem particularly liable to having small babies which are subject to convulsions, mental retardation, growth failure, and even death within their first days.

Add the increased demands of a teenage body to the demands of a fetus, combine it all with the fact that teenage girls exhibit the worst dietary behavior of any group in our society, and we begin to see the magnitude of the problem. Nutrition of teenage girls has to be of major concern.

The mother-to-be should be reminded that her selection of

food during pregnancy is more important than ever before. She must get all the nutrients she herself needs for her own body's growth and development and, in addition, get all the nutrients the baby needs. If her own food habits are poor, the baby must draw its nourishment from her body stores of proteins, minerals, vitamins, carbohydrates, and fats.

The challenge is to motivate the teenager to be concerned with her own well-being, as well as that of her baby, through proper dietary habits before, during, and after pregnancy. Because food habits are established in childhood, the food intake of pregnant adolescents is not likely to change unless there is some real effort made on the part of concerned adults, school food service workers included, to educate pre-teen youngsters about sound nutrition and its relation to pregnancy.

As a school food service worker, you can offer your services as a backup or resource person for any classroom discussions of the subject. Perhaps you can encourage the librarian to purchase some books or send away for some free materials on the subject.

You can be a source of help, information and understanding to pregnant teenagers. If these girls have had contact with a physician, they should have some idea about proper diet



during pregnancy. You can work with these pregnant girls to make it easier for them to follow their diets in your cafeteria. Whatever you can do to help a pregnant girl to eat better will be a big step toward better health for her and her baby.

### **Fad Diets**

While we're talking of nutrition-related health problems, we should give some special attention to the problems arising from fad diets that seem to appear daily. All sorts of fad diets have appeared promising all manners of miraculous results if only such and such a food is eaten, or in some cases, if such and such a food is not eaten. What most of these fads try to do is convince people that there is only one food or one combination of foods that is good for the body. Some of the fad diets are based on religious principles, others are some form of vegetarianism.

What are the dangers of these diets? First, they are usually overly restrictive and based on shaky nutrition principles. Second, they can be harmful to health and, in some cases where diets are followed too rigidly, they are harmful to life. They are especially dangerous for young children and teenagers whose bodies are at a stage where getting enough of the needed nutrients is crucial for proper growth. There is just no denying the fact that the human

body needs a variety of nutrients and that it needs these nutrients consistently over the course of a lifetime. Everytime we try to deny that basic fact, we're asking for trouble.

The problem is that a lot of our young people are following these diets with religious fervor. Some of those young people are eating in your cafeteria. Can you do anything to help the situation? Once again we must answer that your lunch program cannot dispense therapeutic nutrition advice along with the vegetables. You can be sympathetic to some of the problems these students are encountering, encourage them to eat a more balanced meal, and keep information on the perils of food faddism prominently displayed in the cafeteria or the school library. With some of the very young children that you see who may be poorly nourished because of the beliefs of their parents, you might alert the school principal to the problem. Finally, for those vegetarians who eat eggs, milk, and other dairy-type products, you can alert them when your Type A lunch features a dairy-type main dish. Beyond these simple measures there is little you can do.

Though you can't eliminate them, you can help combat these problems by being familiar with them, sharing what you know with students, and helping them to reevaluate their own food habits.

## **Some Useful Words**

### **Iron-Deficiency Anemia**

A blood disorder in which there is a reduced amount of hemoglobin in the blood. It can be corrected by increasing the intake of iron.

### **Hemoglobin**

The agent in the blood that carries oxygen from the lungs to the tissues, and carbon dioxide from the tissues to the lungs.

### **Caries**

Tooth decay.

### **Fluoridation**

A public health procedure by which a water supply's fluoride content is adjusted to reduce tooth decay in children.

### **Desirable Weight**

The weight at any age up to age 25, for each sex and for any given height taken from child development sources and insurance actuarial information. Statistics show that men and women live longest when they maintain their desirable weight.

### **Overweight**

Body weight in excess of desirable weight. Overweight can result from excesses of muscle, fat, or (more rarely) fluid.

## LOOK AHEAD to Program 10 "Innovations and Challenges"

### Obesity

A condition of excess body fat. Almost every one more than 20 percent above desirable weight is obese.

- ☐ What do your students think about your meals? What do they really think?
- ☐ Do you feel the school meals can ever influence a student's eating habits?
- ☐ Are you familiar with the most common fallacies going around in your school, like "Fish food is brain food"? What are some of them?
- ☐ What do you think about the statement, "Our behavior is affected emotionally and intellectually by nutrition"?
- ☐ You're a part of the team of people who bring nutrition to people. Let your imagination run wild and think a few moments about activities your feeding program might get involved in to help the kids in your school become better nourished.
- ☐ What can you do to help members of your community become better nourished?
- ☐ What do you see as the real purpose of the school meal programs?

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)

Before you watch the next program, look at the study guide materials for that program.

# 10

## INNOVATIONS AND CHALLENGES

Throughout this course, you've learned some new facts, heard about some old and new theories, and hopefully learned some better ways of doing things. Most important, you should now have a solid basis of fact in the subject of nutrition that will enable you to make proper food choices for yourself, your students, and your family.

This lesson represents a summary of the important points from the rest of the course as well as some of what school lunch can mean to you. Hopefully, you've gained some idea of your importance in the effort to ensure that the Nation's children are well fed during their years of growth, learning, and maturation.

### A Course Review

The image of school food service is changing. Just the fact that a course on the subject of nutrition has been produced specifically for you indicates that people are viewing the whole school feeding program as an important operation. The school lunch has become a major element in our country's battle to end hunger in America. As a member of the staff that is responsible for feeding the 25 million students who participate in the National School Lunch Program, you are being recognized as a professional.

The question is, do you regard yourself as a professional? This course should help you to understand exactly how important you are to the health and well-being of all the students who come through the lunch line every day.

Briefly let's look at some of the more important points made during the course.

1. **Nutrition is the science of food in relation to health. We eat to live, to grow, to keep healthy and well, to get energy for work and play, and to enjoy life.** People eat for a variety of different reasons. To understand why a student isn't eating as he should be eating, you have to first know the reasons prompting him to eat what he does eat.
2. **Nutrition is still a relatively young science.** Some of those questions you or your students may have really don't have any answers yet. The fact is we just don't know all there is to know about nutrition and as much as we'd like to supply nice, easy answers, we can't honestly do it.



3. **Food is made up of different nutrients needed for growth and health. All nutrients needed by the body are available through food.**

There are many kinds of combinations of food that can supply a well-balanced diet. But no food by itself has all the nutrients needed for growth and health. In other words, if you and your students eat a good variety of foods on a regular basis, you can be reasonably sure that you're getting a good diet.

4. **Each nutrient has specific uses in the body. Most nutrients do their work in the body when teamed with other nutrients.**

In fact, many nutrients depend on other nutrients to accomplish their work in the body. That's why diets consisting of one food or one kind of food just aren't healthy. They don't provide all the nutrients needed in proper amounts.

5. **Proper nutrition is essential if children are to grow and develop into normal healthy, functioning adults.** Physical and mental growth are all dependent on good nutrition during the early growth years of children.

6. **All persons throughout life have need of the same nutrients, but in varying amounts.** The amount of nutrients needed is influenced by age, sex, body size, activity, state of health, and heredity. So the little first grader doesn't need or want as much hamburger or bun as the high school quarterback.

7. **A diet that contains a wide variety of different foods offers the best chance of providing all the nutrients needed.**

8. **There is room for all types of food in a balanced diet.** No food is all good or all bad, but the amounts in which we eat food may result in nutritional imbalance. To say that milk and vegetables are "good," while snack foods are "bad," is not enough. All foods have nutritional value, and all nutrients have value. To say that proteins and vitamins are "good" while carbohydrates and fats are "bad" is also not enough. Any diet which contains too little or too much of any nutrient may result in nutritional imbalance. Too few calories result in starvation, too many result in obesity. Too little protein results in starvation; too much is converted to energy or stored as fat. Too little dietary iodide may cause goiter; too much may also cause goiter. Too little vitamin D may cause rickets; too much may cause serious kidney problems. Extremes are the problems.

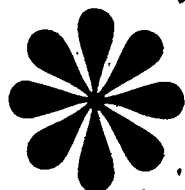
9. **The way food is handled influences the amount of nutrients in food, its safety, appearance, and taste.** "Handling" means everything that happens to food while it is being grown, processed, stored, and prepared for serving. Obviously, handling is very important to the overall worth of the food. In your cafeteria you are responsible for proper preparation so the food that reaches the students is worthwhile eating.

10. **The environment in which food is eaten is almost as important as the food itself.** Because we use food to satisfy psychological as well as physiological needs, the surroundings in which we eat take on a special importance. The atmosphere of the room in which we eat, the way the food is served, the attitude of the people serving the food, and the appearance of the food are all important to our enjoyment of the food.

11. **The school food service program can help to educate children in one of the most important curricular areas, the area of health.** The cafeteria is fast becoming a laboratory for learning the basics of good nutrition and proper eating habits that hopefully will last a lifetime. School food service personnel who can gain a fuller understanding of the subject of nutrition and its relation to health will contribute substantially to this learning experience in the cafeteria.

12. **In the United States health problems exist that are directly related to poor eating habits.** Some of the more prevalent problems among young people are obesity, tooth decay, iron-deficiency anemia, and complications accompanying teenage pregnancy.

When you feel sure you've mastered all the material in this program, turn to the appropriate quiz in the Appendix and fill it in. (When you enrolled in a "Food for Youth" course, you were instructed where to send the completed quizzes.)



## APPENDIX

### Basic References

Each school participating in the National School Lunch Program is entitled to one free copy of the following basic program aids and other food service management references. Distribution is made through the agency in your State which administers the Child Nutrition Programs. These publications are also for sale by: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

#### Basic Program Aids

A Menu Planning Guide for Breakfast at School (FNS-7)  
A Menu Planning Guide for Type A School Lunches (PA-719)  
Food Buying Guide for Type A School Lunches (PA-270)  
Purchasing Pointers for Foods for Type A School Lunches  
Quantity Recipes for Type A School Lunches (PA-631)

#### Food Service Management References

Equipment Guide for On-Site School Kitchens (PA-1091)  
Food Storage Guide for Schools and Institutions (PA-403)

### Other References

#### Free Publications

FNS regional offices supply single copies of the following publications free to schools participating in the National School Lunch Program.

- Daily Food Guide (FNS-13)
- Nutrients and Foods for Health (48"x30" poster) (FNS-95)
- Nutrients and Foods for Health (20"x16½" flyer) (FNS-97)

Requests for publications in quantity must be accompanied by an explanation of the need for the materials and how they will be used in support of child nutrition programs. Contact the office in your region.

#### Region Locator

| State  | Region | State   | Region |
|--------|--------|---------|--------|
| Ala.   | 3      | Mont.   | 5      |
| Alaska | 6      | Nebr.   | 4      |
| A.S.   | 6      | Nev.    | 6      |
| Ariz.  | 6      | N.H.    | 1      |
| Ark.   | 5      | N.J.    | 2      |
| Calif. | 6      | N. Mex. | 5      |
| Colo.  | 5      | N.Y.    | 2      |
| Conn.  | 1      | N.C.    | 3      |
| Del.   | 2      | N. Dak. | 5      |
| D.C.   | 2      | Ohio    | 4      |
| Fla.   | 3      | Okla.   | 5      |
| Ga.    | 3      | Oreg.   | 6      |
| Gum.   | 6      | Pa.     | 2      |
| Hawaii | 6      | P.R.    | 2      |
| Idaho  | 6      | R.I.    | 1      |
| Ill.   | 4      | S.C.    | 3      |
| Ind.   | 4      | S. Dak. | 5      |
| Iowa   | 4      | Tenn.   | 3      |
| Kans.  | 4      | Tex.    | 5      |
| Ky.    | 3      | T.P.I.  | 6      |
| La.    | 5      | Utah    | 5      |
| Maine  | 1      | Vt.     | 1      |
| Md.    | 2      | V.I.    | 2      |
| Mass.  | 1      | Va.     | 2      |
| Mich.  | 4      | Wash.   | 6      |
| Minn.  | 4      | W. Va.  | 2      |
| Miss.  | 3      | Wis.    | 4      |
| Mo.    | 4      | Wyo.    | 5      |

\* American Samoa  
\*\* Trust Territory of Pacific Islands

#### Region 1

U.S. Department of Agriculture  
Food and Nutrition Service  
Waltham Federal Center  
424 Trapelo Road  
Waltham, Mass. 02154

#### Region 2

U.S. Department of Agriculture  
Food and Nutrition Service  
729 Alexander Road  
Princeton, N.J. 08540

#### Region 3

U.S. Department of Agriculture  
Food and Nutrition Service  
1100 Spring Street, N.W.,  
Room 200  
Atlanta, Ga. 30309

#### Region 4

U.S. Department of Agriculture  
Food and Nutrition Service  
536 South Clark Street  
Chicago, Ill. 60605

#### Region 5

U.S. Department of Agriculture  
Food and Nutrition Service  
1100 Commerce Street,  
Room 5-D-22  
Dallas, Tex. 75202

#### Region 6

U.S. Department of Agriculture  
Food and Nutrition Service  
550 Kearny Street  
San Francisco, Calif. 94108



### **Sale Publications**

These publications are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. GPO has current price information.

- **Composition of Food—Raw, Processed, Prepared (Handbook No. 8)**
- **Food. The Yearbook of Agriculture 1959 (YB 59)**
- **Nutrients and Foods for Health (48"x30" poster) (FNS-95)**
- **Nutrients and Foods for Health (20"x16½" flyer) (FNS-97)**
- **Nutritive Value of Foods (G-72)**  
"Recommended Dietary Allowances" (Revised 1974, Eighth edition) is for sale by the Printing and Publishing Office, National Academy of Sciences, 2101 Connecticut Avenue, N.W., Washington, D.C. 20418. They have current price information.

### **Nutrition Education Materials**

The Food and Nutrition Information and Education Materials Center (FNIC) was established to serve school food service personnel. The Center houses several hundred audio-visual and print materials related to school food service management. In addition to nutrition and nutrition education materials, the Center has materials covering the following areas: management and administration, education and training, menu planning and recipes, food preparation and production, equipment, sanitation and safety, plus purchasing, receiving, storage. Printed publications normally developed and distributed by the Department of Agriculture State Experiment Stations, and State Agricultural Extension Services are not distributed through the Center. They may be obtained by writing directly to the Departmental Agency distributing the publications.

You can request materials by mail, telephone, or by visiting the Center. Allow 3 weeks for delivery. Audio-visual aids and printed materials are loaned for 1 month. The Center pays the postage to get the materials to you and to return the materials to the Center. Magazines and some noncirculating materials are not loaned from the Center. However, one photo copy of journal articles or reprints will be made available at no cost.

### **Here's how to reach FNIC:**

#### **Mail address:**

The Food and Nutrition Information and Educational Materials Center  
National Agricultural Library,  
Room 304  
Beltsville, Md. 20705

#### **Telephone:**

(301) 344-3719 (24-hour telephone monitor)

#### **Office hours:**

8:00-4:30 Monday-Friday

#### **Street address:**

10301 Baltimore Boulevard  
Beltsville, Md. 20705

**The Publications List of the Food and Nutrition Service (FNS-11)** describes the nutrition education and training aids available, as well as other materials about the child nutrition programs. Single copies of FNS-11 are available free from the Information Division, U.S. Department of Agriculture, Food and Nutrition Service, Washington, D.C. 20250.





## QUIZZES

### HOW TO TAKE THE QUIZZES

All of the quizzes are "open book" quizzes. You can check the Study Guide before you answer any question you're unsure of.

Be sure you use a dark pencil or pen to mark your answers on the answer sheet.

Circle letter (a, b, or c) before the best possible answer. Note that there may be more than one possible answer for some questions, but that each question has only one possible best answer. If you mark more than one answer for any one question, it will automatically count as a wrong answer.

If you want to change an answer once you've written it down, erase or black out your original answer completely, so that there's no doubt as to which is your final answer.

You will be given instructions on how to turn in the completed quiz.

# QUIZ #1

## What's Nutrition?

Circle letter (a, b or c) before the one best possible answer.

### 1. The school lunch program:

- a. Can help a child form good habits in choosing nutritionally sound meals.
- b. Can affect a child's attitudes about food.
- c. Both of the above.

### 2. Nutrition should be:

- a. Of concern to all school lunch personnel.
- b. Of concern to anyone in charge of buying food.
- c. Of concern to everyone who eats.

### 3. The way we choose the foods we eat depends on:

- a. A wide variety of factors—physical, cultural, emotional, psychological.
- b. What we are told we ought to eat.
- c. Whether or not we are on a diet.

### 4. The science of nutrition is concerned with:

- a. Finding ways to raise healthier fruits, vegetables, and grains.
- b. The relationship between foods and the elements the human body needs for health.
- c. Improving standards of food production and processing.

### 5. A nutritionally sound diet is one that:

- a. Provides the variety of foods the body needs for health.
- b. Provides the largest number of good-tasting foods.
- c. Provides for a steady, regular loss of weight.

### 6. Food likes and dislikes are:

- a. Determined by body needs.
- b. Learned.
- c. Ones you are born with.

### 7. A food fad is:

- a. Any diet that promises loss of weight.
- b. Any food eaten more than twice a day.
- c. Any popular idea about food not backed by scientific evidence.

### 8. The word diet refers to:

- a. The range of foods that may be eaten to lose weight.
- b. The entire range of foods from which we choose in the market.
- c. The entire range of foods eaten by a particular person or group.

Name \_\_\_\_\_

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## QUIZ #2

### Fuel for Life

Circle letter (a, b or c) before the one **best** possible answer.

**1. A calorie is:**

- a. A unit of fat.
- b. A unit of sugar.
- c. A unit of measurement of energy.

**2. How many calories an individual requires is determined by:**

- a. His age and sex.
- b. His activity level and health condition.
- c. A combination of factors including those above.

**3. The body needs energy for:**

- a. Growth and activity.
- b. Growth.
- c. Activity.

**4. Food energy originates in:**

- a. Digestion.
- b. Plant life.
- c. Metabolism.

**5. When the body takes in more calories than it needs:**

- a. The extra calories are eliminated by the body.
- b. The body stores the extra calories in the form of fat.
- c. The body becomes more active.

**6. A form of malnutrition results from:**

- a. Too few calories.
- b. Too many calories.
- c. Either of the above.

**7. The nutrients needed for health and growth are:**

- a. Supplied by vitamin pills.
- b. All available through food.
- c. Contained in calories.

**8. Calories are used by nutritionists to measure:**

- a. Nutrients.
- b. Activity.
- c. Food energy.

## QUIZ #3

### What's In It For Me?

Circle letter (a, b or c) before the one **best** possible answer.

1. Proteins and carbohydrates are two of the substances called:

- a. Enzymes.
- b. Nutrients.
- c. Calories.

2. There are no calories in:

- a. Proteins.
- b. Fats.
- c. Vitamins.

3. Essential amino acids are:

- a. Those the body is not capable of manufacturing.
- b. More important than the rest of the amino acids.
- c. Found in most protein foods.

4. Legumes are:

- a. The most important source of protein.
- b. A good source of protein.
- c. Primarily a source of calories.

5. Hydrogenated fats are:

- a. High in cholesterol.
- b. High in polyunsaturates.
- c. Of variable composition, depending on the degree of hydrogenation.

6. Minerals and vitamins are:

- a. Not as important as protein and carbohydrate.
- b. Found primarily in animal foods.
- c. Two of the six categories of nutrients.

7. Calcium, iron, iodide and fluoride are:

- a. Vitamins.
- b. Proteins.
- c. Minerals.

8. Cholesterol is:

- a. One of the essential amino acids.
- b. Manufactured by the body even when the diet includes foods which contain it.
- c. A fatty substance found only in foods of plant origin.

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# QUIZ #4

## What's a Balanced Diet?

Circle letter (a, b or c) before the one **best** possible answer.

1. The "Basic Four Food Groups" are:

- a. Proteins, Carbohydrates, Minerals, and Vitamins.
- b. Bread, Water, Meat, Leafy Greens.
- c. Meat, Vegetables and Fruits, Milk, Breads and Cereals.

2. The major source of an individual's protein is usually found in:

- a. The Meat Group.
- b. The Vegetable and Fruit Group.
- c. The Bread and Cereal Group.

3. Eggs, an excellent source of protein, belong in:

- a. The Milk Group.
- b. The Meat Group.
- c. Their own special group.

4. Fruits and vegetables are important because:

- a. They are our best source of the B vitamins.
- b. They are a source of essential vitamins and minerals.
- c. They are an excellent protein source.

5. Calcium, which we get chiefly from the Milk Group, is:

- a. Important for building strong bones and teeth.
- b. A good source of essential amino acids.
- c. Not found in skim milk.

6. In addition to calories, the Bread and Cereal Group contributes:

- a. Protein and calcium.
- b. Iodide and fluoride.
- c. B vitamins and iron.

7. Legumes are alternates for food in:

- a. The Bread and Cereal Group.
- b. The Fruit and Vegetable Group.
- c. The Meat Group.

8. White bread or flour which is enriched:

- a. Should be avoided because they are fattening.
- b. Should be chosen rather than white bread or flour which is unenriched.
- c. Provides no needed nutrients.

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## QUIZ #5

### Three Meals a Day, Plus

Circle letter (a, b or c) before the one **best** possible answer.

**1. The "Three Meals a Day" concept:**

- a. Makes eating boring.
- b. Encourages people to snack.
- c. Provides a benchmark to help people plan a balanced food intake.

**2. Balanced meals are:**

- a. Those that actually get eaten.
- b. Not available in restaurants.
- c. Those that combine foods from the Basic Four Food Groups.

**3. A good breakfast:**

- a. Is important for children but not for grownups.
- b. Contains fewer calories than a good lunch.
- c. Provides one-fourth of the nutrients needed for the day.

**4. If children skip breakfast, they can:**

- a. Seldom perform at full efficiency in the morning.
- b. Make up the nutrients they missed when they eat lunch.
- c. Adjust their bodies accordingly.

**5. Vitamin C:**

- a. Dissolves in water.
- b. Is likely to be destroyed by heat and air.
- c. Both of the above.

**6. Special care needs to be taken in cooking protein foods because:**

- a. Prolonged exposure to high heat makes protein food tough.
- b. It loses some of its nutritional value under heat.
- c. It loses some of its flavor in water.

**7. Meat shrinks in cooking, and the juices lost this way can:**

- a. Make the meat tough and rubbery.
- b. Carry B vitamins with them.
- c. Be poured off without loss.

**8. In storing eggs, the safest course is to:**

- a. Store them in refrigerator.
- b. Leave them in a cool corner of the kitchen.
- c. Discard any eggs that are cracked upon receipt of purchase.

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## QUIZ #6

### Preparing Meals: The Last Step

Circle letter (a, b or c) before the one **best** possible answer.

#### 1. Textured plant protein:

- a. Is derived chiefly from peanuts.
- b. Is derived chiefly from soybeans.
- c. Is derived chiefly from the dark green and yellow vegetables.

#### 2. The foods to be served at lunchtime:

- a. Should all be cooked ahead of time and ready to serve when the lunch period begins.
- b. Should be cooked at planned, staggered times so it can be served hot from the stove/oven throughout the lunch period.
- c. Should be cooked as you see servings running low on the serving line.

#### 3. Many nutrients are:

- a. Highly perishable.
- b. Unavailable except in fortified or enriched foods.
- c. Best preserved by serving foods raw.

#### 4. Frozen meat, fish and poultry should be thawed:

- a. Overnight at room temperature on a kitchen counter.
- b. Only in the refrigerator.
- c. In a paper bag placed in the coolest part of the kitchen.

#### 5. The best way to conserve nutrients when cooking vegetables is to use:

- a. Lots of water, a high heat, and the greatest amount of surface area exposed as possible.
- b. Very little water, a low heat, and the greatest amount of surface area exposed as possible.
- c. Very little water, a low heat, and the least amount of surface area exposed as possible.

#### 6. The Type A lunch pattern requirement for one slice of whole-grain or enriched bread:

- a. Means always serve a slice of bread.
- b. Can be met by other approved bread-type foods.
- c. Can be met by a starchy vegetable.

#### 7. A large quantity of a cooked food (i.e., huge kettle of spaghetti sauce) prepared in advance should be:

- a. Left covered, to cool down overnight on a kitchen counter.
- b. Put directly into the refrigerator to cool.
- c. Divided into small batches in shallow containers and refrigerated to cool.

#### 8. Milk served in the Type A lunch:

- a. Must be unflavored fluid whole milk only.
- b. Can be fluid types of unflavored whole milk, lowfat milk, skim milk or cultured buttermilk which meet State and local standards for such types of milk; and flavored milk made from milks which meet these standards.
- c. Can be any milk except flavored milk.

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# QUIZ #7

## Places We Eat In

Circle letter (a, b or c) before the one **best** possible answer.

### 1. The atmosphere of the place in which we eat:

- a. Should have little to do with how much we enjoy our food.
- b. Cannot help but affect how much we enjoy our food.
- c. Is something we should learn to accept with good grace.

### 2. Children are probably best served by the school food service worker who:

- a. Makes sure they eat everything they buy.
- b. Has the most experience on the job.
- c. Offers a smile and a friendly word along with the food.

### 3. Noise in a cafeteria situation:

- a. Is often disturbing to children—small children especially.
- b. Is something that simply cannot be avoided.
- c. Probably matters less to the kids than to the teachers and staff.

### 4. Staggering the arrival times of groups at the cafeteria might:

- a. Make less work for the food service staff.
- b. Result in shorter food lines, less rush, more time for eating.
- c. Confuse children who are used to fixed schedules.

### 5. The most nutritionally well-balanced meal in the world isn't of much good if:

- a. It's served in an unattractive cafeteria.
- b. It's not hot when it's eaten.
- c. It's served to a child who has to eat in an uncomfortable setting.

### 6. Improving the atmosphere of the school cafeteria is the task of:

- a. Everyone concerned with the subject of school food service.
- b. An administrative committee.
- c. The children themselves—and maybe their parents.

### 7. Viewing the cafeteria situation from the student's point of view may:

- a. Take valuable time away from your job.
- b. Help you to understand what students like and dislike.
- c. Give you some decorating ideas you can use at home.

### 8. The single most important thing you can do to improve the school cafeteria atmosphere is:

- a. Work harder.
- b. Learn more about nutrition.
- c. Smile.

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## QUIZ #8

### Classroom and Cafeteria

Circle letter (a, b or c) before the one best possible answer.

1. In addition to helping to meet a child's nutritional needs, a school food program can:
  - a. Help in his citizenship education.
  - b. Help in his nutrition education.
  - c. Help in his arithmetic education.
2. Formal teaching about nutrition would include:
  - a. Guided tours.
  - b. Classroom lessons in nutrition.
  - c. Home-school cooperation.
3. Information about good nutrition practices can be:
  - a. Introduced at the junior high level.
  - b. Made a requirement for every student.
  - c. Worked into lessons that are primarily about other subjects.
4. Direct involvement of students in the school food service program is:
  - a. A highly impractical idea.
  - b. Not likely to interest them.
  - c. Useful in generating student interest about nutrition.
5. The school food service worker can:
  - a. Work cooperatively with teachers in nutrition education.
  - b. Encourage students to get students to plan activities related to the school cafeteria.
  - c. Both of the above.
6. Encouraging a child to try a new food is:
  - a. Contributing to his nutrition education.
  - b. Pretty much a waste of time.
  - c. Not really the job of the school food service worker.
7. Letting students have a voice in menu planning has sometimes:
  - a. Resulted in too much work for the cafeteria manager.
  - b. Increased their interest in and participation in the school food service program.
  - c. Resulted in dramatically reduced costs in school feeding.
8. A solid education in nutrition and its principles will:
  - a. Take more time than the school has available.
  - b. Make working in a cafeteria much easier.
  - c. Provide benefits that can pay off for an entire lifetime.

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## QUIZ #9

### It's Not Good For You!

Circle letter (a, b or c) before the one **best** possible answer.

1. Frequent between-meal snacking on sticky sweets is related to tooth decay because:

- a. They are high in calories.
- b. Intense bacterial activity occurs when sugar sticks to the teeth.
- c. They are low in calcium.

2. A lack of hemoglobin can be due to:

- a. A lack of iron in the diet.
- b. A too high cholesterol count.
- c. A lack of iodide in the diet.

3. A person is generally considered obese when he weighs:

- a. More than he did at age 25.
- b. About 40% more than his desirable weight.
- c. About 20% more than his desirable weight.

4. To combat obesity one must:

- a. Bring an individual's calorie intake into line with his calorie expenditure.
- b. Allow an individual no more than 1,200 calories daily.
- c. Eliminate starches and sugars from the diet.

5. To be effective, a weight-reduction diet should:

- a. Include only low calorie foods.
- b. Put emphasis on foods in the Vegetable and Fruit Group.
- c. Be based on principles of sound nutrition.

6. Pregnant teenagers need to pay special attention to their diets because:

- a. Teenage food habits do not always supply adequate nutrients.
- b. Additional nutrients are needed during pregnancy.
- c. Both of the above.

7. To safeguard against iron-deficiency anemia, it's helpful if one's diet contains:

- a. A variety of iron rich foods including meats such as liver.
- b. Salt-water fish and the use of iodized salt.
- c. Both of the above.

8. To be effective in combating caries, drinking water should be:

- a. Naturally fluoridated.
- b. Have fluoride added by man.
- c. Either of the above.

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# QUIZ #10

## Innovations and Challenges

Circle letter (a, b or c) before the one ~~best~~ possible answer.

1. Potato chips, pretzels, and corn chips:

- a. Are not good for children and should not be served.
- b. Are sources of carbohydrates and calories.
- c. Belong to the Vegetable and Fruit Group.

2. The term Type A describes:

- a. A meal pattern.
- b. An ideal menu.
- c. A formula for food preparation.

3. A "natural" food or a "health" food:

- a. Isn't any better for you than an ordinary food.
- b. Can help prevent disease.
- c. Is always grown in organically fertilized soil.

4. Developing good eating habits in childhood is important because:

- a. Children need more nutrients than adults.
- b. Childhood habits usually carry into adulthood.
- c. Nutrition is related to learning.

5. Eating nutritionally balanced meals regularly can:

- a. Help prevent health problems from occurring.
- b. Help correct health problems already present.
- c. Both of the above.

6. The Recommended Dietary Allowances are:

- a. The exact amount of nutrients you need every day.
- b. Used for planning nutritionally adequate meals.
- c. Foods you should eat daily.

7. Textured plant protein and protein fortified macaroni:

- a. Are examples of innovations in food technology.
- b. Are examples of foods that have to be disguised before kids will eat them.
- c. Are examples of how school foods differ from home foods.

8. Instruction in nutrition to today's youth is best when:

- a. It involves participation by school food service, teaching and administrative personnel.
- b. Learning activities are innovative.
- c. Both answers above.

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